

SEQUENCE LISTING



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<110> Scarlato, Vincenzo
Masignani, Vega
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Pizza, Mariagrazia
Grandi, Guido

<120> Neisserial Antigens

<130> CHIR0160

<140> 09/303,518

<141> 1999-04-30

<160> 1098

<170> PatentIn version 3.1

<210> 1

<211> 502

<212> DNA

<213> Neisseria meningitidis

<220>

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<222> (66)..(66)

<223> N= Unknown

<220>

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<222> (483)..(483)

<223> N= Unknown

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agcagcccaa	tacaatttgg	gcgcaatgta	ttacaaagga	cgcgctgctg	ccgggatgat	180
gctgaagcgg	tcagatggta	tcggcagccg	gcggaacagg	ggttagccca	agcccaatac	240
aatttgggct	ggatgtatgc	caacggggcg	gcgtgcgcca	agatgatacc	gaagcgggtca	300
gatggtatcg	gcaggcggca	gcgcaggggg	ttgtccaagc	ccaatacaat	ttgggcgtga	360
tatatgccga	aggacgtgga	gtgcgccaag	acgatgtcga	agcggtcaga	tggtttcggc	420
aggcggcagc	gcagggggta	gcccaagccc	aaaacaattt	gggcgtgatg	tatgccgaaa	480
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<210> 2

<211> 168

<212> PRT

<213> Neisseria meningitidis

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<222> (6)..(6)

<223> Xaa= any amino acid

<220>

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<223> Xaa= any amino acid

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20 25 30
Leu Xaa Ala Ala Ala Gln Gly Asn Ala Ala Ala Gln Tyr Asn Leu Gly
35 40 45
Ala Met Tyr Xaa Gln Arg Thr Arg Val Arg Arg Asp Asp Ala Glu Ala
50 55 60
Val Arg Trp Tyr Arg Gln Pro Ala Glu Gln Gly Leu Ala Gln Ala Gln
65 70 75 80
Tyr Asn Leu Gly Trp Met Tyr Ala Asn Gly Arg Xaa Val Arg Gln Asp
85 90 95
Asp Thr Glu Ala Val Arg Trp Tyr Arg Gln Ala Ala Ala Gln Gly Val
100 105 110
Val Gln Ala Gln Tyr Asn Leu Gly Val Ile Tyr Ala Glu Gly Arg Gly
115 120 125
Val Arg Gln Asp Asp Val Glu Ala Val Arg Trp Phe Arg Gln Ala Ala
130 135 140
Ala Gln Gly Val Ala Gln Ala Gln Asn Asn Leu Gly Val Met Tyr Ala
145 150 155 160
Glu Arg Xaa Arg Val Arg Gln Asp

<210> 3
 <211> 597
 <212> DNA
 <213> *Neisseria meningitidis*

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 gcagcagccc aatacaattt gggcgcaatg tattacaaag gacgcggcgt gcgccgggat 180
 gatgctgaag cggtcagatg gtatcggcag gcggcggaac aggggttagc ccaagcccaa 240
 tacaatttgg gctggatgta tgccaacggg cgcggcgtgc gccaatga taccgaagcg 300
 gtcagatggt atcggcaggc ggcagcgagc ggggttgtcc aagcccaata caatttgggc 360
 gtgatatatg ccgaaggacg tggagtgcgc caagacgatg tcgaagcggc cagatgggtt 420
 cggcaggcgg cagcgcaggg ggtagcccaa gcccaaaaca atttgggctg gatgtatgcc 480
 gaaagacgag gcgtgcgcca agaccgcgcc cttgcacaag aatgggttgg caaggcttgt 540
 caaacgggag accaagacgg ctgcgacaat gaccaacgcc tgaaggcggg ttattga 597

<210> 4
 <211> 198
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 4
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 20 25 30
 Leu Gln Ala Ala Ala Gln Gly Asn Ala Ala Ala Gln Tyr Asn Leu Gly
 35 40 45
 Ala Met Tyr Tyr Lys Gly Arg Gly Val Arg Arg Asp Asp Ala Glu Ala
 50 55 60
 Val Arg Trp Tyr Arg Gln Ala Ala Glu Gln Gly Leu Ala Gln Ala Gln
 65 70 75 80
 Tyr Asn Leu Gly Trp Met Tyr Ala Asn Gly Arg Gly Val Arg Gln Asp
 85 90 95
 Asp Thr Glu Ala Val Arg Trp Tyr Arg Gln Ala Ala Ala Gln Gly Val
 100 105 110
 Val Gln Ala Gln Tyr Asn Leu Gly Val Ile Tyr Ala Glu Gly Arg Gly
 115 120 125
 Val Arg Gln Asp Asp Val Glu Ala Val Arg Trp Phe Arg Gln Ala Ala
 130 135 140
 Ala Gln Gly Val Ala Gln Ala Gln Asn Asn Leu Gly Val Met Tyr Ala
 145 150 155 160
 Glu Arg Arg Gly Val Arg Gln Asp Arg Ala Leu Ala Gln Glu Trp Phe

165

170

175

Gly Lys Ala Cys Gln Asn Gly Asp Gln Asp Gly Cys Asp Asn Asp Gln
180 185 190

Arg Leu Lys Ala Gly Tyr
195

<210> 5
<211> 273
<212> DNA
<213> Neisseria meningitidis

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gtgtgggagg atgacgtatc ggatttttcgg gaaaacttgc aggcggcagc acagggaaat 120
gcagcagccc aaaacaattt gggcgtgatg tatgccgaaa gacgcggcgt gcgccaagac 180
cgcgcccttg cacaagaattg gcttggcaag gcttgtcaaa acggatacca agacagctgc 240
gacaatgacc aacgcctgaa agcgggttat tga 273

<210> 6
<211> 90
<212> PRT
<213> Neisseria meningitidis

<400> 6
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1 5 10 15

Leu Asn Gln Ala Val Trp Ala Asp Asp Val Ser Asp Phe Arg Glu Asn
20 25 30

Leu Gln Ala Ala Ala Gln Gly Asn Ala Ala Ala Gln Asn Asn Leu Gly
35 40 45

Val Met Tyr Ala Glu Arg Arg Gly Val Arg Gln Asp Arg Ala Leu Ala
50 55 60

Gln Glu Trp Leu Gly Lys Ala Cys Gln Asn Gly Tyr Gln Asp Ser Cys
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Asp Asn Asp Gln Arg Leu Lys Ala Gly Tyr
85 90

<210> 7
<211> 381
<212> DNA
<213> Neisseria gonorrhoeae

<400> 7
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gtgtgggagg gtgacgtatc ggatttttcgg gaaaacttgc aggcggcaga acagggaaat 120
gcagcagccc aattcaattt gggcgtgatg tatgaaaattg gacaaggagt tcgtcaagat 180
tatgtacagg cagtgcagtg gtatcgcaag gcttcagaac aaggggatgc ccaagcccaa 240
tacaatttgg gcttgatgta ttacgatgga cgcggcgtgc gccaagacct tgcgctcgct 300
caacaatggc ttggcaaggc ttgtcaaaac ggagacccaa acagctgcga caatgaccaa 360

cgcctgaagg cgggttatta a

381

<210> 8

<211> 126

<212> PRT

<213> Neisseria meningitidis

<400> 8

Met Lys Gln Thr Val Lys Trp Leu Ala Ala Ala Leu Ile Ala Leu Gly
1 5 10 15

Leu Asn Gln Ala Val Trp Ala Gly Asp Val Ser Asp Phe Arg Glu Asn
20 25 30

Leu Gln Ala Ala Glu Gln Gly Asn Ala Ala Ala Gln Phe Asn Leu Gly
35 40 45

Val Met Tyr Glu Asn Gly Gln Gly Val Arg Gln Asp Tyr Val Gln Ala
50 55 60

Val Gln Trp Tyr Arg Lys Ala Ser Glu Gln Gly Asp Ala Gln Ala Gln
65 70 75 80

Tyr Asn Leu Gly Leu Met Tyr Tyr Asp Gly Arg Gly Val Arg Gln Asp
85 90 95

Leu Ala Leu Ala Gln Gln Trp Leu Gly Lys Ala Cys Gln Asn Gly Asp
100 105 110

Gln Asn Ser Cys Asp Asn Asp Gln Arg Leu Lys Ala Gly Tyr
115 120 125

<210> 9

<211> 357

<212> DNA

<213> Neisseria meningitidis

<400> 9

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ttggacggca agtatcagtt cagcagcgac gtttccgcgc aaatcctgac ttcsggactt	180
ttgggcgagc agtacatcgg gctgcagcag ggcggcgaca cggaaaacct tgctgccggc	240
gacaccatct ccgtaaccag ttctgcaatg gttctggaaa accttatcgg caaattcatg	300
acgagttttg ccgagaaaaa tgccgacggc ggcaatgcgg aaaaagccgc cgaataa	357

<210> 10

<211> 118

<212> PRT

<213> Neisseria meningitidis

<400> 10

Phe Gly Asp Ile Gly Gly Leu Lys Val Asn Ala Pro Val Lys Ser Ala
1 5 10 15

Gly Val Leu Val Gly Arg Val Gly Ala Ile Gly Leu Asp Pro Lys Ser
20 25 30

Tyr Gln Ala Arg Val Arg Leu Asp Leu Asp Gly Lys Tyr Gln Phe Ser
 35 40 45
 Ser Asp Val Ser Ala Gln Ile Leu Thr Ser Gly Leu Leu Gly Glu Gln
 50 55 60
 Tyr Ile Gly Leu Gln Gln Gly Gly Asp Thr Glu Asn Leu Ala Ala Gly
 65 70 75 80
 Asp Thr Ile Ser Val Thr Ser Ser Ala Met Val Leu Glu Asn Leu Ile
 85 90 95
 Gly Lys Phe Met Thr Ser Phe Ala Glu Lys Asn Ala Asp Gly Gly Asn
 100 105 110
 Ala Glu Lys Ala Ala Glu
 115

<210> 11
 <211> 858
 <212> DNA
 <213> Neisseria meningitidis

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 cccggaaagg acggaacc ttttaaatg gtcaaattcc gttccatgcg cgacggcttg 120
 tattcagacg gcattccgct gcccgacgga gaacgcctga caccgttcgg caaaaaactg 180
 cgtgccgcca gtwtggacga actgcctgaa ttatggaata tcttaaaagg cgagatgagc 240
 ctggtcggcc cccgcccgtc gctgatgcaa tatctgccgc tgtacgacaa cttccaaaac 300
 cgccgccacg aaatgaaacc cggcattacc ggctggggcg aggtcaacgg gcgcaacgcg 360
 ctttcgtggg acgaaaaatt cgcctgcgat gtttggtata tcgaccactt cagcctgtgc 420
 ctcgacatca aaatcctact gctgacggtt aaaaaagtat taatcaagga agggatttcc 480
 gcacagggcg aacaaccatg ccccttttca caggaaaacg caaactcgcc gtcgtcgggtg 540
 cgggaggaca cggaaaagtc gttgccgacc ttgccgccgc actcggccgg tacagggaaa 600
 tcgtttttct ggacgaccgc gcacaaggca gcgtcaacgg cttttccgtc atcggcacga 660
 cgctgctgct tgaaaacagt ttatcgcccg aacaatacga cgtcgccgtc gccgtcggca 720
 acaaccgcat ccgccgcaa atcgccgaaa aagccgccgc gtcgggttc gccctgcccg 780
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<210> 12
 <211> 286
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (65)..(65)
 <223> Xaa= any amino acid

<220>
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 <222> (165)..(165)
 <223> Xaa= any amino acid

<400> 12

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 20 25 30
 Phe Arg Ser Met Arg Asp Gly Leu Tyr Ser Asp Gly Ile Pro Leu Pro
 35 40 45
 Asp Gly Glu Arg Leu Thr Pro Phe Gly Lys Lys Leu Arg Ala Ala Ser
 50 55 60
 Xaa Asp Glu Leu Pro Glu Leu Trp Asn Ile Leu Lys Gly Glu Met Ser
 65 70 75 80
 Leu Val Gly Pro Arg Pro Leu Leu Met Gln Tyr Leu Pro Leu Tyr Asp
 85 90 95
 Asn Phe Gln Asn Arg Arg His Glu Met Lys Pro Gly Ile Thr Gly Trp
 100 105 110
 Ala Gln Val Asn Gly Arg Asn Ala Leu Ser Trp Asp Glu Lys Phe Ala
 115 120 125
 Cys Asp Val Trp Tyr Ile Asp His Phe Ser Leu Cys Leu Asp Ile Lys
 130 135 140
 Ile Leu Leu Leu Thr Val Lys Lys Val Leu Ile Lys Glu Gly Ile Ser
 145 150 155 160
 Ala Gln Gly Glu Xaa Thr Met Pro Pro Phe Thr Gly Lys Arg Lys Leu
 165 170 175
 Ala Val Val Gly Ala Gly Gly His Gly Lys Val Val Ala Asp Leu Ala
 180 185 190
 Ala Ala Leu Gly Arg Tyr Arg Glu Ile Val Phe Leu Asp Asp Arg Ala
 195 200 205
 Gln Gly Ser Val Asn Gly Phe Ser Val Ile Gly Thr Thr Leu Leu Leu
 210 215 220
 Glu Asn Ser Leu Ser Pro Glu Gln Tyr Asp Val Ala Val Ala Val Gly
 225 230 235 240
 Asn Asn Arg Ile Arg Arg Gln Ile Ala Glu Lys Ala Ala Ala Leu Gly
 245 250 255
 Phe Ala Leu Pro Val Leu Val His Pro Asp Ala Thr Val Ser Pro Ser
 260 265 270
 Ala Thr Val Gly Gln Gly Ser Val Val Met Ala Lys Ala Val
 275 280 285

<210> 13

<211> 1242

<212> DNA
 <213> Neisseria meningitidis

<400> 13
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 ttcttctttc aggaacgccc cggaaaggac ggaaaacctt ttaaaatggt caaattccgt 180
 tccatgcgcg acgcgcttga ttcagacggc attccgctgc ccgacggaga acgcctgaca 240
 ccgttcggca aaaaactgcg tgccgccagt ttggacgaac tgctgaatt atggaatata 300
 ttaaaaggcg agatgagcct ggtcggcccc cgcccgtgc tgatgcaata tctgccgctg 360
 tacgacaact tccaaaaccg ccgccacgaa atgaaaccg gcattaccgg ctgggcgcag 420
 gtcaacgggc gcaacgcgct ttcgtgggac gaaaaattcg cctgcgatgt ttggtatata 480
 gaccacttca gcctgtgcct cgacatcaaa atcctactgc tgacgggttaa aaaagtatta 540
 atcaaggaag ggatttccgc acaggcgcaa gccaccatgc cccctttcac aggaaaacgc 600
 aaactcgccg tcgtcggtag gggcggacac ggaaaagtcg ttgccgacct tgccgcgcga 660
 ctgggccggg acaggggaaat cgtttttctg gacgaccgcg cacaaggcag cgtcaacggc 720
 ttttccgtca tcggcacgac gctgctgctt gaaaacagtt tatcgcccga acaatacgac 780
 gtcgccgctc ccgtcggcaa caaccgcatc cgccgccaaa tcgccgaaaa agccgcgcgcg 840
 ctgggcttcg ccctgcccgt tctggttcat ccggacgcga ccgtctcgcc ttctgcaaca 900
 gtcggacaag gcagcgtcgt tatggcgaaa gccgtcgtac aggcaggcag cgtattgaaa 960
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 gtccacatca gccaggcgc gcacctgtcg ggcaacacgc atatcggcga agaaagctgg 1080
 ataggcacgg gcgcgtgcag ccgccagcag atccgtatcg gcagccgcgc aaccattgga 1140
 gcgggcgcag tcgtcgtacg cgacgtttca gacggcatga ccgtcgcggg caatccggga 1200
 aagccgctgc cgcgcaaaaa ccccgagacc tcgacagcat aa 1242

<210> 14
 <211> 413
 <212> PRT
 <213> Neisseria meningitidis

<400> 14
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 20 25 30
 Arg Lys Asn Leu Gly Ser Pro Val Phe Phe Phe Gln Glu Arg Pro Gly
 35 40 45
 Lys Asp Gly Lys Pro Phe Lys Met Val Lys Phe Arg Ser Met Arg Asp
 50 55 60
 Ala Leu Asp Ser Asp Gly Ile Pro Leu Pro Asp Gly Glu Arg Leu Thr
 65 70 75 80
 Pro Phe Gly Lys Lys Leu Arg Ala Ala Ser Leu Asp Glu Leu Pro Glu
 85 90 95
 Leu Trp Asn Ile Leu Lys Gly Glu Met Ser Leu Val Gly Pro Arg Pro
 100 105 110
 Leu Leu Met Gln Tyr Leu Pro Leu Tyr Asp Asn Phe Gln Asn Arg Arg
 115 120 125

His Glu Met Lys Pro Gly Ile Thr Gly Trp Ala Gln Val Asn Gly Arg
 130 135 140
 Asn Ala Leu Ser Trp Asp Glu Lys Phe Ala Cys Asp Val Trp Tyr Ile
 145 150 155 160
 Asp His Phe Ser Leu Cys Leu Asp Ile Lys Ile Leu Leu Leu Thr Val
 165 170 175
 Lys Lys Val Leu Ile Lys Glu Gly Ile Ser Ala Gln Gly Glu Ala Thr
 180 185 190
 Met Pro Pro Phe Thr Gly Lys Arg Lys Leu Ala Val Val Gly Ala Gly
 195 200 205
 Gly His Gly Lys Val Val Ala Asp Leu Ala Ala Leu Gly Arg Tyr
 210 215 220
 Arg Glu Ile Val Phe Leu Asp Asp Arg Ala Gln Gly Ser Val Asn Gly
 225 230 235 240
 Phe Ser Val Ile Gly Thr Thr Leu Leu Leu Glu Asn Ser Leu Ser Pro
 245 250 255
 Glu Gln Tyr Asp Val Ala Val Ala Val Gly Asn Asn Arg Ile Arg Arg
 260 265 270
 Gln Ile Ala Glu Lys Ala Ala Ala Leu Gly Phe Ala Leu Pro Val Leu
 275 280 285
 Val His Pro Asp Ala Thr Val Ser Pro Ser Ala Thr Val Gly Gln Gly
 290 295 300
 Ser Val Val Met Ala Lys Ala Val Val Gln Ala Gly Ser Val Leu Lys
 305 310 315 320
 Asp Gly Val Ile Val Asn Thr Ala Ala Thr Val Asp His Asp Cys Leu
 325 330 335
 Leu Asn Ala Phe Val His Ile Ser Pro Gly Ala His Leu Ser Gly Asn
 340 345 350
 Thr His Ile Gly Glu Glu Ser Trp Ile Gly Thr Gly Ala Cys Ser Arg
 355 360 365
 Gln Gln Ile Arg Ile Gly Ser Arg Ala Thr Ile Gly Ala Gly Ala Val
 370 375 380
 Val Val Arg Asp Val Ser Asp Gly Met Thr Val Ala Gly Asn Pro Ala
 385 390 395 400
 Lys Pro Leu Pro Arg Lys Asn Pro Glu Thr Ser Thr Ala
 405 410

<210> 15
 <211> 1242

<212> DNA
 <213> Neisseria meningitidis

<400> 15

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ttcttctt	ttc	aggaacg	ccc	cggaaag	gac	ggaaaaa	ccctt	ttaaaat	ggg	caaattc	cg	180
tccatgc	acg	acgcgct	tga	ttcagac	ggc	attctgt	cgc	ccgacgg	gaga	acgcctg	aca	240
ccgttcg	gca	aaaaact	gcg	tgccgcc	cagt	ttggacg	aac	tgcccga	act	gtggaac	g	300
ctcaaagg	cgc	acatgag	cct	ggtcggc	ccc	cgcccgc	tgc	tgatgca	ata	tctgccg	ctg	360
tacgaca	act	tccaaa	accg	ccgccac	gaa	atgaaac	cgcg	gcattac	cgcg	ctggg	cgcag	420
gtcaacg	ggc	gcaacgc	gct	ttcgtgg	gac	gaacgct	tcg	catg	cgacat	ctgg	tata	480
gaccact	tca	gcctgtg	cct	cgacatc	aaa	atcctac	tgc	tgacggg	ttaa	aaaag	tatta	540
atcaaaga	ag	ggatttc	gcg	acagggc	gaa	gccaccat	gc	ccccctt	tcac	aggaaa	acgc	600
aaacttg	ccg	tcgtcgg	tgc	gggcgg	acac	ggcaaag	tgc	ttgccg	agct	tgccgc	cgc	660
ctcggca	cat	acggcga	aat	cgttttt	ctg	gacgacc	gcg	tccaagg	cag	cgtca	acggc	720
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ctcggct	tgc	ccctgcc	cgt	cctgatt	cat	ccggact	cga	ccgtctc	gcc	ttctg	caaca	900
gtcggaca	ag	gcggcgc	tgc	tatggcg	aaa	gccgtcg	tac	aggctg	acag	cgtatt	gaaa	960
gacggcg	ttaa	ttgtga	acac	tgccgcc	cacc	gtcgatc	acg	attgcct	gct	tgatg	ctttc	1020
gtccaca	tca	gccccgg	gcgc	gcacctg	tgc	ggcaac	acgc	gtatcgg	cga	agaaag	ctgg	1080
ataggca	cag	gcgcgtg	cag	ccgccag	cag	atccgt	atcg	gcagccg	cgc	aaccatt	gga	1140
gcgggcg	cag	tcgtcgt	gcg	cgacgtt	tca	gacggc	atga	ccgtcgc	ggg	caacc	ggca	1200
aaaccatt	gg	caggca	aaaaa	taccga	gacc	ctgcgg	tgc	aa				1242

<210> 16
 <211> 413
 <212> PRT
 <213> Neisseria meningitidis

<400> 16

Met	Ser	Lys	Phe	Phe	Lys	Arg	Leu	Phe	Asp	Ile	Val	Ala	Ser	Ala	Ser
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			20					25					30		
Arg	Lys	Asn	Leu	Gly	Ser	Pro	Val	Phe	Phe	Phe	Gln	Glu	Arg	Pro	Gly
		35					40					45			
Lys	Asp	Gly	Lys	Pro	Phe	Lys	Met	Val	Lys	Phe	Arg	Ser	Met	His	Asp
	50					55					60				
Ala	Leu	Asp	Ser	Asp	Gly	Ile	Leu	Leu	Pro	Asp	Gly	Glu	Arg	Leu	Thr
65					70					75				80	
Pro	Phe	Gly	Lys	Lys	Leu	Arg	Ala	Ala	Ser	Leu	Asp	Glu	Leu	Pro	Glu
				85					90					95	
Leu	Trp	Asn	Val	Leu	Lys	Gly	Asp	Met	Ser	Leu	Val	Gly	Pro	Arg	Pro
		100						105					110		
Leu	Leu	Met	Gln	Tyr	Leu	Pro	Leu	Tyr	Asp	Asn	Phe	Gln	Asn	Arg	Arg
		115						120					125		

His Glu Met Lys Pro Gly Ile Thr Gly Trp Ala Gln Val Asn Gly Arg
 130 135 140
 Asn Ala Leu Ser Trp Asp Glu Arg Phe Ala Cys Asp Ile Trp Tyr Ile
 145 150 155 160
 Asp His Phe Ser Leu Cys Leu Asp Ile Lys Ile Leu Leu Leu Thr Val
 165 170 175
 Lys Lys Val Leu Ile Lys Glu Gly Ile Ser Ala Gln Gly Glu Ala Thr
 180 185 190
 Met Pro Pro Phe Thr Gly Lys Arg Lys Leu Ala Val Val Gly Ala Gly
 195 200 205
 Gly His Gly Lys Val Val Ala Glu Leu Ala Ala Ala Leu Gly Thr Tyr
 210 215 220
 Gly Glu Ile Val Phe Leu Asp Asp Arg Val Gln Gly Ser Val Asn Gly
 225 230 235 240
 Phe Pro Val Ile Gly Thr Thr Leu Leu Leu Glu Asn Ser Leu Ser Pro
 245 250 255
 Glu Gln Phe Asp Ile Ala Val Ala Val Gly Asn Asn Arg Ile Arg Arg
 260 265 270
 Gln Ile Ala Glu Lys Ala Ala Ala Leu Gly Phe Ala Leu Pro Val Leu
 275 280 285
 Ile His Pro Asp Ser Thr Val Ser Pro Ser Ala Thr Val Gly Gln Gly
 290 295 300
 Gly Val Val Met Ala Lys Ala Val Val Gln Ala Asp Ser Val Leu Lys
 305 310 315 320
 Asp Gly Val Ile Val Asn Thr Ala Ala Thr Val Asp His Asp Cys Leu
 325 330 335
 Leu Asp Ala Phe Val His Ile Ser Pro Gly Ala His Leu Ser Gly Asn
 340 345 350
 Thr Arg Ile Gly Glu Glu Ser Trp Ile Gly Thr Gly Ala Cys Ser Arg
 355 360 365
 Gln Gln Ile Arg Ile Gly Ser Arg Ala Thr Ile Gly Ala Gly Ala Val
 370 375 380
 Val Val Arg Asp Val Ser Asp Gly Met Thr Val Ala Gly Asn Pro Ala
 385 390 395 400
 Lys Pro Leu Ala Gly Lys Asn Thr Glu Thr Leu Arg Ser
 405 410

<210> 17

<211> 1242

<212> DNA

<213> Neisseria gonorrhoeae

<400> 17

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ttcttcattc	gggaacgccc	cggaaaggac	ggaaaacctt	ttaaaatggg	caaattccgt	180
tccatgcgcg	acgcgcttga	ttcagacggc	attccgctgc	ccgatagcga	acgcctgacc	240
gatttcggca	aaaaattacg	cgccaccagt	ttggacgaac	ttcctgaatt	atggaatgtc	300
ctcaaaggcg	agatgagcct	ggtcggcccc	cgcccgtttt	tgatgcagta	tctgccgctt	360
tacaacaaat	ttcaaaaccg	ccgccacgaa	atgaaaccgg	gcattaccgg	ctgggcgcag	420
gtcaacgggc	gcaacgcgct	ttcgtgggac	gaaaagttct	cctgcgatgt	ttggtacacc	480
gacaatttca	gcttttggct	ggatatgaaa	atcctgtttc	tgacagtcaa	aaaagtcttg	540
attaaagaag	gcatttcggc	gcaaggggaa	gccaccatgc	cccctttcgc	ggggaatcgc	600
aaactcggcg	ttatcggcgc	gggcggacac	ggcaaagtcg	ttgccgagct	tgccgccgca	660
ctcggcacat	acggcgaaat	cgtttttctg	gacgaccgca	cccaaggcag	cgtcaacggc	720
ttccccgtca	tcggcacgac	gctgctgctt	gaaaacagtt	tatcgcccga	acaattcgac	780
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ctcggcttca	aactgcccg	tctgattcat	cccagcgcga	ccgtctcgcc	ttctgcaata	900
atcggacaag	gcagcgctcg	aatggcgaaa	gccgtcgtac	aggccggcag	cgtattgaaa	960
gacggcgtga	ttgtgaacac	tgccgccacc	gtcgatcacg	actgcctgct	tgacgctttc	1020
gtccacatca	gcccgggcgc	gcacctgtcg	ggcaacacgc	gtatcggcga	agaaagccgg	1080
ataggcacgg	gcgcgtgcag	ccgccagcag	acaaccgtcg	gcagcggggg	taccgccggg	1140
gcagggggcg	ttatcgatatg	cgacatcccc	gacggcatga	ccgtcgcggg	caaccgggca	1200
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<210> 18

<211> 413

<212> PRT

<213> Neisseria gonorrhoeae

<400> 18

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Gly	Leu	Ile	Val	Leu	Ser	Pro	Val	Phe	Leu	Val	Leu	Ile	Tyr	Leu	Ile
			20					25					30		
Arg	Lys	Asn	Leu	Gly	Ser	Pro	Val	Phe	Phe	Ile	Arg	Glu	Arg	Pro	Gly
		35					40					45			
Lys	Asp	Gly	Lys	Pro	Phe	Lys	Met	Val	Lys	Phe	Arg	Ser	Met	Arg	Asp
	50					55					60				
Ala	Leu	Asp	Ser	Asp	Gly	Ile	Pro	Leu	Pro	Asp	Ser	Glu	Arg	Leu	Thr
65					70					75				80	
Asp	Phe	Gly	Lys	Lys	Leu	Arg	Ala	Thr	Ser	Leu	Asp	Glu	Leu	Pro	Glu
				85					90					95	
Leu	Trp	Asn	Val	Leu	Lys	Gly	Glu	Met	Ser	Leu	Val	Gly	Pro	Arg	Pro
		100						105					110		
Leu	Leu	Met	Gln	Tyr	Leu	Pro	Leu	Tyr	Asn	Lys	Phe	Gln	Asn	Arg	Arg
		115						120					125		

His	Glu	Met	Lys	Pro	Gly	Ile	Thr	Gly	Trp	Ala	Gln	Val	Asn	Gly	Arg	130	135	140
Asn	Ala	Leu	Ser	Trp	Asp	Glu	Lys	Phe	Ser	Cys	Asp	Val	Trp	Tyr	Thr	145	150	155
Asp	Asn	Phe	Ser	Phe	Trp	Leu	Asp	Met	Lys	Ile	Leu	Phe	Leu	Thr	Val	165	170	175
Lys	Lys	Val	Leu	Ile	Lys	Glu	Gly	Ile	Ser	Ala	Gln	Gly	Glu	Ala	Thr	180	185	190
Met	Pro	Pro	Phe	Ala	Gly	Asn	Arg	Lys	Leu	Ala	Val	Ile	Gly	Ala	Gly	195	200	205
Gly	His	Gly	Lys	Val	Val	Ala	Glu	Leu	Ala	Ala	Ala	Leu	Gly	Thr	Tyr	210	215	220
Gly	Glu	Ile	Val	Phe	Leu	Asp	Asp	Arg	Thr	Gln	Gly	Ser	Val	Asn	Gly	225	230	235
Phe	Pro	Val	Ile	Gly	Thr	Thr	Leu	Leu	Leu	Glu	Asn	Ser	Leu	Ser	Pro	245	250	255
Glu	Gln	Phe	Asp	Ile	Thr	Val	Ala	Val	Gly	Asn	Asn	Arg	Ile	Arg	Arg	260	265	270
Gln	Ile	Thr	Glu	Asn	Ala	Ala	Ala	Leu	Gly	Phe	Lys	Leu	Pro	Val	Leu	275	280	285
Ile	His	Pro	Asp	Ala	Thr	Val	Ser	Pro	Ser	Ala	Ile	Ile	Gly	Gln	Gly	290	295	300
Ser	Val	Val	Met	Ala	Lys	Ala	Val	Val	Gln	Ala	Gly	Ser	Val	Leu	Lys	305	310	315
Asp	Gly	Val	Ile	Val	Asn	Thr	Ala	Ala	Thr	Val	Asp	His	Asp	Cys	Leu	325	330	335
Leu	Asp	Ala	Phe	Val	His	Ile	Ser	Pro	Gly	Ala	His	Leu	Ser	Gly	Asn	340	345	350
Thr	Arg	Ile	Gly	Glu	Glu	Ser	Arg	Ile	Gly	Thr	Gly	Ala	Cys	Ser	Arg	355	360	365
Gln	Gln	Thr	Thr	Val	Gly	Ser	Gly	Val	Thr	Ala	Gly	Ala	Gly	Ala	Val	370	375	380
Ile	Val	Cys	Asp	Ile	Pro	Asp	Gly	Met	Thr	Val	Ala	Gly	Asn	Pro	Ala	385	390	395
Lys	Pro	Leu	Thr	Gly	Lys	Asn	Pro	Lys	Thr	Gly	Thr	Ala				405	410	

<210> 19

<211> 394

<212> DNA

<213> *Neisseria meningitidis*

<400> 19

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gacaatatcc	atgccgtttc	ttcagacacg	tggcgcaccc	atgcagctac	cgaaatcgaa	180
gacatcaaca	ccttcttcgg	cacggaatac	agcatcgaag	aagccgacac	cattggcggc	240
ctggtcattc	aagagttggg	acatctgccc	gtgcgcggcg	aaaaagtcct	tatcggcggt	300
ttgcagttca	ccgtcgcacg	cgccgacaac	cgccgcctgc	atacgtgat	ggcgacccgc	360
gtgaagtaag	caccgccgtt	tctgcacagt	ttag			394

<210> 20

<211> 131

<212> PRT

<213> *Neisseria meningitidis*

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<222> (125)..(125)

<223> Xaa= any amino acid

<400> 20

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Val	Thr	Phe	Glu	Asp	Ile	Ile	Glu	Gln	Ile	Val	Gly	Glu	Ile	Glu	Asp
			20				25						30		
Glu	Phe	Asp	Glu	Asp	Asp	Ser	Ala	Asp	Asn	Ile	His	Ala	Val	Ser	Ser
		35					40					45			
Asp	Thr	Trp	Arg	Ile	His	Ala	Ala	Thr	Glu	Ile	Glu	Asp	Ile	Asn	Thr
	50				55						60				
Phe	Phe	Gly	Thr	Glu	Tyr	Ser	Ile	Glu	Glu	Ala	Asp	Thr	Ile	Xaa	Arg
65				70				75						80	
Pro	Gly	His	Ser	Arg	Val	Gly	Thr	Ser	Ala	Arg	Ala	Arg	Arg	Lys	Ser
			85					90						95	
Pro	Tyr	Arg	Arg	Phe	Ala	Val	His	Arg	Arg	Thr	Arg	Arg	Gln	Pro	Pro
		100					105						110		
Pro	Ala	Tyr	Ala	Asp	Gly	Asp	Pro	Arg	Glu	Val	Ser	Xaa	Arg	Arg	Phe
	115						120					125			
Cys	Thr	Val													
	130														

<210> 21

<211> 900
 <212> DNA
 <213> Neisseria meningitidis

<400> 21
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 tttgatgcgg atacgctttt aagattggaa aaagtcctcg atttttccga tttggaagtg 180
 cgcgacgcga tgattacgcg cagccgtatg aacgttttaa aagaaaacga cagcatcgag 240
 cgcacacccg cctacgttat cgataccgcc ctttcgcgct tccccgtcat cggcgaagac 300
 aaagacgaag ttttgggcat tttgcacgcc aaagacctgc tcaaataatat gtttaacccc 360
 gagcagttcc acctcaaac ctttctccgc ccgcgcgtct tcgtccccga aggcaaatec 420
 ctgaccgccc ttttaaaaga gttccgcgaa cagcgcaacc atatggcgat tgtcatcgac 480
 gaatacggcg gcacatccgg cttgggtcacc tttgaagaca tcatcgagca aatcgctcggc 540
 gaaatcgaag acgagtttga cgaagacgat agcgcgcgaca atatccatgc cgtttcttcc 600
 gaacgctggc gcatccatgc agctaccgaa atcgaagaca tcaacacctt cttcggcacg 660
 gaatacagca gcgaagaagc cgacaccatt cggcctgggtc attcaagagt tgggacatct 720
 gccgctgcgc ggcgaaaaag tccttatcgg cggtttgcag ttcaccgtcg cacgcgccga 780
 caaccgccgc ctgcatacgc tgatggcgac ccgcgtgaag taagcaccgc cgtttctgca 840
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<210> 22
 <211> 299
 <212> PRT
 <213> Neisseria meningitidis

<400> 22
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 Arg Leu Ala Arg Glu Pro Asp Ser Ala Glu Asp Val Leu Asn Leu Leu
 20 25 30
 Arg Gln Ala His Glu Gln Glu Val Phe Asp Ala Asp Thr Leu Leu Arg
 35 40 45
 Leu Glu Lys Val Leu Asp Phe Ser Asp Leu Glu Val Arg Asp Ala Met
 50 55 60
 Ile Thr Arg Ser Arg Met Asn Val Leu Lys Glu Asn Asp Ser Ile Glu
 65 70 75 80
 Arg Ile Thr Ala Tyr Val Ile Asp Thr Ala His Ser Arg Phe Pro Val
 85 90 95
 Ile Gly Glu Asp Lys Asp Glu Val Leu Gly Ile Leu His Ala Lys Asp
 100 105 110
 Leu Leu Lys Tyr Met Phe Asn Pro Glu Gln Phe His Leu Lys Ser Ile
 115 120 125
 Leu Arg Pro Ala Val Phe Val Pro Glu Gly Lys Ser Leu Thr Ala Leu
 130 135 140
 Leu Lys Glu Phe Arg Glu Gln Arg Asn His Met Ala Ile Val Ile Asp
 145 150 155 160

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<222> (769)..(769)
<223> N= Unknown

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<223> N= Unknown

<220>
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<223> N= Unknown

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tttgatgcgg atacgctttt aagattggaa aaagtcctcg atttttctga tttggaagtg 180
cgcgacgcga tgattacgcg cagccgtatg aacgttttaa aagaaaacga cagcatcgaa 240
cgcatcaccg cctacgttat cgataccgcc cattcgcgct tccccgtcat cgggtgaagac 300
aaagacgaag ttttgggtat tttgcacgcc aaagacctgc tcaaataat gttcaacccc 360
gagcagttcc acctcaaadc gatattgcgc cctgccgtct tcgtccccga aggcaaatacg 420
ctgaccgccc ttttaaaaga gttccgcgaa cagcgcaacc atatggcaat cgtcatcgac 480
gaatacggcg gcacgtcggg tttggttaact tttgaagaca tcatcgagca aatcgtcggc 540
gacatcgaag atgagtttga cgaagacgaa agcgcggaca acatccacgc cgtttccgcc 600
gaacgctggc gcattccacgc ggctaccgaa atcgaagaca tcaacgcctt tttcggcacg 660
gaatacagca gcgaagaagc cgacaccatc ggcgccntg gtcattcagg aattggnaca 720
cctgcccgtg cgcgcgcaaa aagtcnttat cggcgntttg canttcaacng tcgcengcgc 780
ngacaaccgc cgctgcata cgctgatggc gaccgcgctg aagtaagctc cgccgtttct 840
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taa 903

<210> 24
<211> 300
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (11)..(12)
<223> Xaa= any amino acid

<220>
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<222> (233)..(233)

<223> Xaa= any amino acid

<220>

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<222> (249)..(249)

<223> Xaa= any amino acid

<220>

<221> misc_feature

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<222> (259)..(259)

<223> Xaa= any amino acid

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<223> Xaa= any amino acid

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<222> (299)..(299)

<223> Xaa= any amino acid

<400> 24

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Arg	Leu	Ala	Arg	Glu	Pro	Asp	Ser	Ala	Glu	Asp	Val	Leu	Thr	Leu	Leu
		20						25					30		

Arg	Gln	Ala	His	Glu	Gln	Glu	Val	Phe	Asp	Ala	Asp	Thr	Leu	Leu	Arg
		35					40					45			

Leu	Glu	Lys	Val	Leu	Asp	Phe	Ser	Asp	Leu	Glu	Val	Arg	Asp	Ala	Met
	50					55					60				

Ile	Thr	Arg	Ser	Arg	Met	Asn	Val	Leu	Lys	Glu	Asn	Asp	Ser	Ile	Glu
65					70					75				80	

Arg	Ile	Thr	Ala	Tyr	Val	Ile	Asp	Thr	Ala	His	Ser	Arg	Phe	Pro	Val
			85						90					95	

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Ile Gly Glu Asp Lys Asp Glu Val Leu Gly Ile Leu His Ala Lys Asp
      100                      105                      110

Leu Leu Lys Tyr Met Phe Asn Pro Glu Gln Phe His Leu Lys Ser Ile
      115                      120                      125

Leu Arg Pro Ala Val Phe Val Pro Glu Gly Lys Ser Leu Thr Ala Leu
      130                      135                      140

Leu Lys Glu Phe Arg Glu Gln Arg Asn His Met Ala Ile Val Ile Asp
      145                      150                      155                      160

Glu Tyr Gly Gly Thr Ser Gly Leu Val Thr Phe Glu Asp Ile Ile Glu
      165                      170                      175

Gln Ile Val Gly Asp Ile Glu Asp Glu Phe Asp Glu Asp Glu Ser Ala
      180                      185                      190

Asp Asn Ile His Ala Val Ser Ala Glu Arg Trp Arg Ile His Ala Ala
      195                      200                      205

Thr Glu Ile Glu Asp Ile Asn Ala Phe Phe Gly Thr Glu Tyr Ser Ser
      210                      215                      220

Glu Glu Ala Asp Thr Ile Gly Gly Xaa Gly His Ser Gly Ile Gly Thr
      225                      230                      235                      240

Pro Ala Arg Ala Arg Arg Lys Ser Xaa Tyr Arg Arg Xaa Ala Xaa His
      245                      250                      255

Xaa Arg Xaa Arg Xaa Gln Pro Pro Pro Ala Tyr Ala Asp Gly Asp Pro
      260                      265                      270

Arg Glu Val Ser Ser Ala Val Ser Val Gln Phe Arg Met Thr Val Arg
      275                      280                      285

Ala Phe Ser Val Ser Ile Arg Pro Ile Arg Xaa Thr
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<210> 25
<211> 8
<212> DNA
<213> Neisseria gonorrhoeae

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<223> N= Unknown

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<210> 26
<211> 287
<212> PRT
<213> Neisseria gonorrhoeae

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<400> 26

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Arg Gln Ala His Glu Gln Glu Val Phe Asp Ala Asp Thr Leu Thr Arg
35 40 45
Leu Glu Lys Val Leu Asp Phe Ala Glu Leu Glu Val Arg Asp Ala Met
50 55 60
Ile Thr Arg Ser Arg Met Asn Val Leu Lys Glu Asn Asp Ser Ile Glu
65 70 75 80
Arg Ile Thr Ala Tyr Val Ile Asp Thr Ala His Ser Arg Phe Pro Val
85 90 95
Ile Gly Glu Asp Lys Asp Glu Val Leu Gly Ile Leu His Ala Lys Asp
100 105 110
Leu Leu Lys Tyr Met Phe Asn Pro Glu Gln Phe His Leu Lys Ser Val
115 120 125
Leu Arg Pro Ala Val Phe Val Pro Glu Gly Lys Ser Leu Thr Ala Leu
130 135 140
Leu Lys Glu Phe Arg Glu Gln Arg Asn His Met Ala Ile Val Ile Asp
145 150 155 160
Glu Tyr Gly Gly Thr Ser Gly Leu Val Thr Phe Glu Asp Ile Ile Glu
165 170 175
Gln Ile Val Gly Asp Ile Glu Asp Glu Phe Asp Glu Asp Glu Ser Ala
180 185 190
Asp Asp Ile His Ser Val Ser Ala Glu Arg Trp Arg Ile His Ala Ala
195 200 205
Thr Glu Ile Glu Asp Ile Asn Ala Phe Phe Gly Thr Glu Tyr Gly Ser
210 215 220
Glu Glu Ala Asp Thr Ile Arg Arg Leu Gly His Ser Gly Ile Gly Thr
225 230 235 240
Pro Ala Arg Ala Arg Arg Lys Ser Pro Tyr Arg Arg Phe Ala Val His
245 250 255
Arg Arg Pro Arg Arg Gln Pro Pro Pro Ala His Ala Asp Gly Asp Pro
260 265 270
Arg Glu Val Ser Arg Ala Cys Pro His Arg Arg Phe Cys Thr Val
275 280 285

<210> 27

<211> 915
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 27

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tttgatgccg	acacactgac	ccggctggaa	aaagtattgg	actttgccga	gctggaagtg	180
cgcgatgcga	tgattacgcg	cagccgcatg	aacgtattga	aagaaaacga	cagcatcgaa	240
cgcacaccg	cctacgtcat	cgataccgcc	cattcgcgct	tccccgtcat	cggcgaagac	300
aaagacgaag	ttttgggcat	tttgcacgcc	aaagacctgc	tcaaataat	gttcaacccc	360
gagcagttcc	acctgaaatc	cgtcttgccg	cctgcccgtt	tcgtgcccga	aggcaaactc	420
ttgaccgccc	ttttaaaga	gttccgcgaa	cagcgcaacc	atatggcaat	cgatcatcgac	480
gaatacggcg	gcacgtcggg	tttggtcacc	tttgaagaca	tcacgcagca	aatcgtcggt	540
gacatcgaag	acgagtttga	cgaagacgaa	agcgccgacg	acatccactc	cgtttccgcc	600
gaacgctggc	gcatccacgc	ggctaccgaa	atcgaagaca	tcaacgcctt	tttcggtacg	660
gaatacggca	gcgaagaagc	cgacaccatc	cggcggcttg	gtcattcagg	aattgggaca	720
cctgcccgtg	cgcgccgaaa	aagtccttat	cggcgggttg	cagttcaccg	tcgcccgcgc	780
cgacaaccgc	cgccctgcaca	cgctgatggc	gacccgcgtg	aagtaagcag	agcctgcccgc	840
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atccgccaaa	cataa					915

<210> 28
 <211> 304
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 28

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Arg	Leu	Ala	Arg	Glu	Pro	Asp	Ser	Ala	Glu	Asp	Val	Leu	Asn	Leu	Leu
		20						25					30		
Arg	Gln	Ala	His	Glu	Gln	Glu	Val	Phe	Asp	Ala	Asp	Thr	Leu	Thr	Arg
		35					40					45			
Leu	Glu	Lys	Val	Leu	Asp	Phe	Ala	Glu	Leu	Glu	Val	Arg	Asp	Ala	Met
	50					55					60				
Ile	Thr	Arg	Ser	Arg	Met	Asn	Val	Leu	Lys	Glu	Asn	Asp	Ser	Ile	Glu
65					70				75					80	
Arg	Ile	Thr	Ala	Tyr	Val	Ile	Asp	Thr	Ala	His	Ser	Arg	Phe	Pro	Val
			85						90					95	
Ile	Gly	Glu	Asp	Lys	Asp	Glu	Val	Leu	Gly	Ile	Leu	His	Ala	Lys	Asp
		100						105						110	
Leu	Leu	Lys	Tyr	Met	Phe	Asn	Pro	Glu	Gln	Phe	His	Leu	Lys	Ser	Val
		115						120				125			
Leu	Arg	Pro	Ala	Val	Phe	Val	Pro	Glu	Gly	Lys	Ser	Leu	Thr	Ala	Leu
	130					135					140				
Leu	Lys	Glu	Phe	Arg	Glu	Gln	Arg	Asn	His	Met	Ala	Ile	Val	Ile	Asp

145		150		155		160
Glu Tyr Gly Gly Thr Ser Gly Leu Val Thr Phe Glu Asp Ile Ile Glu						
	165			170		175
Gln Ile Val Gly Asp Ile Glu Asp Glu Phe Asp Glu Asp Glu Ser Ala						
	180		185			190
Asp Asp Ile His Ser Val Ser Ala Glu Arg Trp Arg Ile His Ala Ala						
	195		200		205	
Thr Glu Ile Glu Asp Ile Asn Ala Phe Phe Gly Thr Glu Tyr Gly Ser						
	210		215		220	
Glu Glu Ala Asp Thr Ile Arg Arg Leu Gly His Ser Gly Ile Gly Thr						
	225		230		235	240
Pro Ala Arg Ala Arg Arg Lys Ser Pro Tyr Arg Arg Phe Ala Val His						
		245		250		255
Arg Arg Pro Arg Arg Gln Pro Pro Pro Ala His Ala Asp Gly Asp Pro						
	260		265		270	
Arg Glu Val Ser Arg Ala Cys Pro Thr Ala Val Ser Ala Gln Phe Arg						
	275		280		285	
Met Thr Val Arg Ser Phe Ser Val Ser Ile Arg Pro Ile Arg Gln Thr						
	290		295		300	

<210> 29
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 <212> DNA
 <213> Neisseria meningitidis

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aatgaaaaac tgatggcgga agttgcgccc gatgccttca gcggcaatcc tgaagggcag	180
tttttccccg acagctacga aatcgatgcg ggcggcagtg atttcagat ttaccaaacc	240
gcctacaagg gcgatgcaac gccgcctgaa tgagggcatg ggaaagcagg caggacgggc	300
tgccttataa aaacccttat gaaatgctga ttatggcgar cctggtcgaa aaggaaacag	360
ggcatgaagc cgascscgac catgtcgctt ccgtcttcgt caaccgcctg aaaatcggtg	420
tgcgcctgca aaccgasscg tccgtgattt acggcatggg tgcggcatac aagggcaaaa	480
tccgtaaagc cgacctgcgc cgcgacacgc cgtacaacac ctacacgcgc ggcggtctgc	540
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<210> 30
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 <213> Neisseria meningitidis

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 <223> Xaa= any amin acid

<220>
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 <222> (124)..(125)
 <223> Xaa= any amin acid

<220>
 <221> misc_feature
 <222> (145)..(146)
 <223> Xaa= any amin acid

<400> 30
 Met Arg Gly Gly Arg Pro Asp Ser Val Thr Val Gln Ile Ile Glu Gly
 1 5 10 15
 Ser Arg Phe Ser His Met Arg Lys Val Ile Asp Ala Thr Pro Asp Ile
 20 25 30
 Gly His Asp Thr Lys Gly Trp Ser Asn Glu Lys Leu Met Ala Glu Val
 35 40 45
 Ala Pro Asp Ala Phe Ser Gly Asn Pro Glu Gly Gln Phe Phe Pro Asp
 50 55 60
 Ser Tyr Glu Ile Asp Ala Gly Gly Ser Asp Leu Gln Ile Tyr Gln Thr
 65 70 75 80
 Ala Tyr Lys Ala Met Gln Arg Arg Leu Asn Glu Ala Trp Glu Ser Arg
 85 90 95
 Gln Asp Gly Leu Pro Tyr Lys Asn Pro Tyr Glu Met Leu Ile Met Ala
 100 105 110
 Xaa Leu Val Glu Lys Glu Thr Gly His Glu Ala Xaa Xaa Asp His Val
 115 120 125
 Ala Ser Val Phe Val Asn Arg Leu Lys Ile Gly Met Arg Leu Gln Thr
 130 135 140
 Xaa Xaa Ser Val Ile Tyr Gly Met Gly Ala Ala Tyr Lys Gly Lys Ile
 145 150 155 160
 Arg Lys Ala Asp Leu Arg Arg Asp Thr Pro Tyr Asn Thr Tyr Thr Arg
 165 170 175
 Gly Gly Leu Pro Pro Thr Pro Ile Ala Leu Pro
 180 185

<210> 31
 <211> 996
 <212> DNA
 <213> Neisseria meningitidis

<400> 31
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 gccgcgctgc tttttgttcc taaggataac ggcagggcat accgaatcaa aattgccaaa 120
 aaccagggta tttcgtcggt cggcaggaaa cttgccgaag accgcatcgt gttcagcagg 180

catgttttga	cggcggcggc	ctacgttttg	ggtgtgcaca	acaggctgca	tacggggagc	240
tacagattgc	cttcggaagt	gtctgcttgg	gatatcttgc	agaaaatgcg	cggcggcagg	300
ccggattccg	ttaccgtgca	gattatcgaa	ggttcgcgtt	tttcgcatat	gaggaaagtc	360
atcgacgcaa	cgccccgacat	cggacacgac	accaaaggct	ggagcaatga	aaaactgatg	420
gcggaagtgt	cgccccgatgc	cttcagcggc	aatcctgaag	ggcagttttt	ccccgacagc	480
tacgaaatcg	atgcggggcgg	cagtgatttg	cagatttacc	aaaccgccta	caaggcgatg	540
caacgccgcc	tgaatgaggc	atgggaaagc	aggcaggacg	ggctgcctta	taaaaaccct	600
tatgaaatgc	tgattatggc	gagcctggtc	gaaaaggaaa	cagggcatga	agccgaccgc	660
gaccatgtcg	cttccgtctt	cgtcaaccgc	ctgaaaatcg	gtatgcgcct	gcaaaccgac	720
ccgtccgtga	tttacggcat	gggtgcggca	tacaagggca	aaatccgtaa	agccgacctg	780
cgcgcgcgaca	cgcgcgtacaa	cacctacacg	cgcggcggtc	tgccgccaac	cccgattgcg	840
ctgccccggca	aggcggcact	cgatgccgcc	gccccatccgt	ccggcgaaaa	atacctgtat	900
ttcgtgtcca	aaatggacgg	cacgggcttg	agccagttca	gccatgattt	gaccgaacac	960
aatgccgccg	tccgcaaata	tattttgaaa	aaataa			996

<210> 32

<211> 331

<212> PRT

<213> Neisseria meningitidis

<400> 32

Met	Leu	Arg	Lys	Leu	Leu	Lys	Trp	Ser	Ala	Val	Phe	Leu	Thr	Val	Ser	1	5	10	15
Ala	Ala	Val	Phe	Ala	Ala	Leu	Leu	Phe	Val	Pro	Lys	Asp	Asn	Gly	Arg	20	25	30	
Ala	Tyr	Arg	Ile	Lys	Ile	Ala	Lys	Asn	Gln	Gly	Ile	Ser	Ser	Val	Gly	35	40	45	
Arg	Lys	Leu	Ala	Glu	Asp	Arg	Ile	Val	Phe	Ser	Arg	His	Val	Leu	Thr	50	55	60	
Ala	Ala	Ala	Tyr	Val	Leu	Gly	Val	His	Asn	Arg	Leu	His	Thr	Gly	Thr	65	70	75	80
Tyr	Arg	Leu	Pro	Ser	Glu	Val	Ser	Ala	Trp	Asp	Ile	Leu	Gln	Lys	Met	85	90	95	
Arg	Gly	Gly	Arg	Pro	Asp	Ser	Val	Thr	Val	Gln	Ile	Ile	Glu	Gly	Ser	100	105	110	
Arg	Phe	Ser	His	Met	Arg	Lys	Val	Ile	Asp	Ala	Thr	Pro	Asp	Ile	Gly	115	120	125	
His	Asp	Thr	Lys	Gly	Trp	Ser	Asn	Glu	Lys	Leu	Met	Ala	Glu	Val	Ala	130	135	140	
Pro	Asp	Ala	Phe	Ser	Gly	Asn	Pro	Glu	Gly	Gln	Phe	Phe	Pro	Asp	Ser	145	150	155	160
Tyr	Glu	Ile	Asp	Ala	Gly	Gly	Ser	Asp	Leu	Gln	Ile	Tyr	Gln	Thr	Ala	165	170	175	
Tyr	Lys	Ala	Met	Gln	Arg	Arg	Leu	Asn	Glu	Ala	Trp	Glu	Ser	Arg	Gln	180	185	190	

Asp Gly Leu Pro Tyr Lys Asn Pro Tyr Glu Met Leu Ile Met Ala Ser
 195 200 205
 Leu Val Glu Lys Glu Thr Gly His Glu Ala Asp Arg Asp His Val Ala
 210 215 220
 Ser Val Phe Val Asn Arg Leu Lys Ile Gly Met Arg Leu Gln Thr Asp
 225 230 235 240
 Pro Ser Val Ile Tyr Gly Met Gly Ala Ala Tyr Lys Gly Lys Ile Arg
 245 250 255
 Lys Ala Asp Leu Arg Arg Asp Thr Pro Tyr Asn Thr Tyr Thr Arg Gly
 260 265 270
 Gly Leu Pro Pro Thr Pro Ile Ala Leu Pro Gly Lys Ala Ala Leu Asp
 275 280 285
 Ala Ala Ala His Pro Ser Gly Glu Lys Tyr Leu Tyr Phe Val Ser Lys
 290 295 300
 Met Asp Gly Thr Gly Leu Ser Gln Phe Ser His Asp Leu Thr Glu His
 305 310 315 320
 Asn Ala Ala Val Arg Lys Tyr Ile Leu Lys Lys
 325 330

<210> 33
 <211> 996
 <212> DNA
 <213> Neisseria meningitidis

<400> 33
 atgttgagaa aattgttgaa atggtctgcc gtttttttga ccgtatcggc agccggttttc 60
 gccgcgctgc ttttcgtccc taaagacaac ggcagggcat acaggattaa aattgccaaa 120
 aaccagggtta tttcgtcggc cggcaggaaa cttgccgaag accgcatcgt gttcagcagg 180
 catgttttga cggcggcggc ctacgttttg ggtgtgcaca acaggctgca tacggggacg 240
 tacagactgc cttcgggaagt gtctgcttgg gatattctgc agaaaatgcg cggcggcagg 300
 ccggattccg ttaccgtgca gattatcgaa ggttcgcgtt tttcgcataat gaggaaagtc 360
 atcgacgcaa cgcccgacat cgaacacgac accaaaggct ggagcaatga aaaactgatg 420
 gcggaagtgt cccctgatgc cttcagcggc aatcctgaag ggcagttttt ccccgacagc 480
 tacgaaatcg atgcggggcgg cagcgattta cggatttacc aaatcgccta caaggcgatg 540
 caacgccgac tgaatgaggc atgggaaagc aggcaggacg ggctgcctta taaaaaccct 600
 tatgaaatgc tgattatggc gagcctgatc gaaaaggaaa cagggcatag agccgaccgc 660
 gaccatgtcg cttccgtctt cgtcaaccgc ctgaaaatcg gtatgcgcct gcaaaccgac 720
 ccgtccgtga tttacggcat ggggtgcggca tacaagggca aaatccgtaa agccgacctg 780
 cgccgcgaca cgccgtacaa cacctacacg cgcggcggtc tgccgccaac cccgatcgcg 840
 ctgcccggca aggcggcact cgatgccgcc gcccatccgt ccggtgaaaa atacctgtat 900
 ttcgtgtcca aaatggacgg tacgggcttg agccagttca gccatgattt gaccgaacac 960
 aacgccgcgg ttcgcaaaata tattttgaaa aaataa 996

<210> 34
 <211> 331
 <212> PRT
 <213> Neisseria meningitidis

<400> 34

Met	Leu	Arg	Lys	Leu	Leu	Lys	Trp	Ser	Ala	Val	Phe	Leu	Thr	Val	Ser
1				5					10					15	
Ala	Ala	Val	Phe	Ala	Ala	Leu	Leu	Phe	Val	Pro	Lys	Asp	Asn	Gly	Arg
			20					25					30		
Ala	Tyr	Arg	Ile	Lys	Ile	Ala	Lys	Asn	Gln	Gly	Ile	Ser	Ser	Val	Gly
		35					40					45			
Arg	Lys	Leu	Ala	Glu	Asp	Arg	Ile	Val	Phe	Ser	Arg	His	Val	Leu	Thr
	50					55					60				
Ala	Ala	Ala	Tyr	Val	Leu	Gly	Val	His	Asn	Arg	Leu	His	Thr	Gly	Thr
65					70					75					80
Tyr	Arg	Leu	Pro	Ser	Glu	Val	Ser	Ala	Trp	Asp	Ile	Leu	Gln	Lys	Met
				85					90					95	
Arg	Gly	Gly	Arg	Pro	Asp	Ser	Val	Thr	Val	Gln	Ile	Ile	Glu	Gly	Ser
			100					105					110		
Arg	Phe	Ser	His	Met	Arg	Lys	Val	Ile	Asp	Ala	Thr	Pro	Asp	Ile	Glu
		115					120					125			
His	Asp	Thr	Lys	Gly	Trp	Ser	Asn	Glu	Lys	Leu	Met	Ala	Glu	Val	Ala
	130					135					140				
Pro	Asp	Ala	Phe	Ser	Gly	Asn	Pro	Glu	Gly	Gln	Phe	Phe	Pro	Asp	Ser
145					150					155					160
Tyr	Glu	Ile	Asp	Ala	Gly	Gly	Ser	Asp	Leu	Arg	Ile	Tyr	Gln	Ile	Ala
			165						170					175	
Tyr	Lys	Ala	Met	Gln	Arg	Arg	Leu	Asn	Glu	Ala	Trp	Glu	Ser	Arg	Gln
		180						185					190		
Asp	Gly	Leu	Pro	Tyr	Lys	Asn	Pro	Tyr	Glu	Met	Leu	Ile	Met	Ala	Ser
	195						200					205			
Leu	Ile	Glu	Lys	Glu	Thr	Gly	His	Glu	Ala	Asp	Arg	Asp	His	Val	Ala
	210					215					220				
Ser	Val	Phe	Val	Asn	Arg	Leu	Lys	Ile	Gly	Met	Arg	Leu	Gln	Thr	Asp
225					230					235					240
Pro	Ser	Val	Ile	Tyr	Gly	Met	Gly	Ala	Ala	Tyr	Lys	Gly	Lys	Ile	Arg
			245						250					255	
Lys	Ala	Asp	Leu	Arg	Arg	Asp	Thr	Pro	Tyr	Asn	Thr	Tyr	Thr	Arg	Gly
		260						265					270		
Gly	Leu	Pro	Pro	Thr	Pro	Ile	Ala	Leu	Pro	Gly	Lys	Ala	Ala	Leu	Asp
		275					280					285			
Ala	Ala	Ala	His	Pro	Ser	Gly	Glu	Lys	Tyr	Leu	Tyr	Phe	Val	Ser	Lys

290

295

300

Met Asp Gly Thr Gly Leu Ser Gln Phe Ser His Asp Leu Thr Glu His
 305 310 315 320

Asn Ala Ala Val Arg Lys Tyr Ile Leu Lys Lys
 325 330

<210> 35

<211> 8

<212> DNA

<213> Neisseria gonorrhoeae

<220>

<221> misc_feature

<222> (1)..(8)

<223> N= Unknown

<400> 35

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8

<210> 36

<211> 236

<212> PRT

<213> Neisseria gonorrhoeae

<400> 36

Met Arg Gly Gly Arg Pro Asp Ser Val Thr Val Gln Ile Ile Glu Gly
 1 5 10 15

Ser Arg Phe Ser His Met Arg Lys Val Ile Asp Ala Thr Pro Asp Ile
 20 25 30

Gly His Asp Thr Lys Gly Trp Ser Asn Glu Lys Leu Met Ala Glu Val
 35 40 45

Ala Pro Asp Ala Phe Ser Gly Asn Pro Glu Gly Gln Phe Phe Pro Asp
 50 55 60

Ser Tyr Glu Ile Asp Ala Gly Gly Ser Asp Leu Gln Ile Tyr Gln Thr
 65 70 75 80

Ala Tyr Lys Ala Met Gln Arg Arg Leu Asn Glu Ala Trp Ala Gly Arg
 85 90 95

Gln Asp Gly Leu Pro Tyr Lys Asn Pro Tyr Glu Met Leu Ile Met Ala
 100 105 110

Ser Leu Ile Glu Lys Glu Thr Gly His Glu Ala Asp Arg Asp His Val
 115 120 125

Ala Ser Val Phe Val Asn Arg Leu Lys Ile Gly Met Arg Leu Gln Thr
 130 135 140

Asp Pro Ser Val Ile Tyr Gly Met Gly Ala Ala Tyr Lys Gly Lys Ile
 145 150 155 160

Arg Lys Ala Asp Leu Arg Arg Asp Thr Pro Tyr Asn Thr Tyr Thr Gly
165 170 175

Gly Gly Leu Pro Pro Thr Arg Ile Ala Leu Pro Gly Lys Ala Ala Met
180 185 190

Asp Ala Ala Ala His Pro Ser Gly Glu Lys Tyr Leu Tyr Phe Val Ser
195 200 205

Lys Met Asp Gly Thr Gly Leu Ser Gln Phe Ser His Asp Leu Thr Glu
210 215 220

His Asn Ala Ala Val Arg Lys Tyr Ile Leu Lys Lys
225 230 235

<210> 37
<211> 897
<212> DNA
<213> Neisseria gonorrhoeae

<400> 37
taccgaatca agattgccaa aaatcagggt atttcgtcgg tcggcaggaa acttgccgaa 60
gaccgcatcg tgttcagcag gcatgttttg acagcggcgg cctacgtttt ggggtgtgcac 120
aacaggctgc atacggggac gtacagattg ctttcggaag tgtctgcttg ggatatcttg 180
cagaaaatgc gcggcggcag gccggattcc gttaccgtgc agattatcga aggttcgcgt 240
ttttcgcata tgaggaaagt catcgacgca acgcccagaca tcggacacga caccaaaggc 300
tgagcaatg aaaaactgat ggcggaagtt gcgcccgatg ctttcagcgg caatcctgaa 360
gggcagtttt ttcccagacag ctacgaaatc gatgcggggc gcagcgattt gcagatttac 420
caaaccgcct acaaggcgat gcaacgcgc ctgaacgagg catgggcagg caggcaggac 480
gggctgcctt ataaaaaccc ttatgaaatg ctgattatgg cgagcctgat cgaaaaggaa 540
acggggcatg aggccgaccg cgaccatgtc gtttcgtct tcgtcaaccg cctgaaaatc 600
ggtatgcgcc tgcaaaccga cccgtccgtg atttacggca tgggtgcggc atacaagggc 660
aaaatccgta aagccgacct gcgccgcgac acgccgtaca acacctatac gggcgggggc 720
ttgccgcaa cccggattgc gctgcccggc aaggcggcaa tggatgccgc cgcccacccg 780
tcggcgaaa aatacctgta tttcgtgtcc aaaatggacg gcacgggctt gagccagttc 840
agccatgatt tgaccgaaca caacgccgcc gtccgcaaat atattttgaa aaaataa 897

<210> 38
<211> 298
<212> PRT
<213> Neisseria gonorrhoeae

<400> 38
Tyr Arg Ile Lys Ile Ala Lys Asn Gln Gly Ile Ser Ser Val Gly Arg
1 5 10 15

Lys Leu Ala Glu Asp Arg Ile Val Phe Ser Arg His Val Leu Thr Ala
20 25 30

Ala Ala Tyr Val Leu Gly Val His Asn Arg Leu His Thr Gly Thr Tyr
35 40 45

Arg Leu Pro Ser Glu Val Ser Ala Trp Asp Ile Leu Gln Lys Met Arg
50 55 60

Gly Gly Arg Pro Asp Ser Val Thr Val Gln Ile Ile Glu Gly Ser Arg

65	70	75	80
Phe Ser His Met Arg Lys Val Ile Asp Ala Thr Pro Asp Ile Gly His	85	90	95
Asp Thr Lys Gly Trp Ser Asn Glu Lys Leu Met Ala Glu Val Ala Pro	100	105	110
Asp Ala Phe Ser Gly Asn Pro Glu Gly Gln Phe Phe Pro Asp Ser Tyr	115	120	125
Glu Ile Asp Ala Gly Gly Ser Asp Leu Gln Ile Tyr Gln Thr Ala Tyr	130	135	140
Lys Ala Met Gln Arg Arg Leu Asn Glu Ala Trp Ala Gly Arg Gln Asp	145	150	155
Gly Leu Pro Tyr Lys Asn Pro Tyr Glu Met Leu Ile Met Ala Ser Leu	165	170	175
Ile Glu Lys Glu Thr Gly His Glu Ala Asp Arg Asp His Val Ala Ser	180	185	190
Val Phe Val Asn Arg Leu Lys Ile Gly Met Arg Leu Gln Thr Asp Pro	195	200	205
Ser Val Ile Tyr Gly Met Gly Ala Ala Tyr Lys Gly Lys Ile Arg Lys	210	215	220
Ala Asp Leu Arg Arg Asp Thr Pro Tyr Asn Thr Tyr Thr Gly Gly Gly	225	230	235
Leu Pro Pro Thr Arg Ile Ala Leu Pro Gly Lys Ala Ala Met Asp Ala	245	250	255
Ala Ala His Pro Ser Gly Glu Lys Tyr Leu Tyr Phe Val Ser Lys Met	260	265	270
Asp Gly Thr Gly Leu Ser Gln Phe Ser His Asp Leu Thr Glu His Asn	275	280	285
Ala Ala Val Arg Lys Tyr Ile Leu Lys Lys	290	295	

<210> 39
 <211> 498
 <212> DNA
 <213> Neisseria meningitidis

<400> 39							
cgtttcaaaa	tggttaactgt	gttgacggca	accttgattg	ccggacaggt	atctgccgcc		60
ggaggcggtg	cgggggatat	gaaacagccg	aaggaagtcg	gaaaggtttt	cagaaagcag		120
cagcggttaca	gcgaggaaga	aatcaaaaac	gaacgcgcac	ggcttgccgc	agtgggcgag		180
cgggttaatc	agatatttac	gttgctggga	ggggaaaccg	ccttgcaaaa	ggggcaggcg		240
ggaacggctc	tggcaaccta	tatgctgatg	ttggaacgca	caaaatcccc	cgaagtcgcc		300
gaacgcgcct	tggaaatggc	cgtgtcgctg	aacgcgtttg	aacaggcgga	aatgatttat		360

cagaaatggc	ggcagattga	gcctataccg	ggtaaggcgc	aaaaacgggc	ggggtggctg	420
cggaacgtgc	tgaggggaaag	aggaaatcag	catctggacg	gacgggaaga	agtgtggct	480
caggcgacg	aaggacag					498

<210> 40
 <211> 166
 <212> PRT
 <213> Neisseria meningitidis

<400> 40
 Arg Phe Lys Met Leu Thr Val Leu Thr Ala Thr Leu Ile Ala Gly Gln
 1 5 10 15
 Val Ser Ala Ala Gly Gly Gly Ala Gly Asp Met Lys Gln Pro Lys Glu
 20 25 30
 Val Gly Lys Val Phe Arg Lys Gln Gln Arg Tyr Ser Glu Glu Glu Ile
 35 40 45
 Lys Asn Glu Arg Ala Arg Leu Ala Ala Val Gly Glu Arg Val Asn Gln
 50 55 60
 Ile Phe Thr Leu Leu Gly Gly Glu Thr Ala Leu Gln Lys Gly Gln Ala
 65 70 75 80
 Gly Thr Ala Leu Ala Thr Tyr Met Leu Met Leu Glu Arg Thr Lys Ser
 85 90 95
 Pro Glu Val Ala Glu Arg Ala Leu Glu Met Ala Val Ser Leu Asn Ala
 100 105 110
 Phe Glu Gln Ala Glu Met Ile Tyr Gln Lys Trp Arg Gln Ile Glu Pro
 115 120 125
 Ile Pro Gly Lys Ala Gln Lys Arg Ala Gly Trp Leu Arg Asn Val Leu
 130 135 140
 Arg Glu Arg Gly Asn Gln His Leu Asp Gly Arg Glu Glu Val Leu Ala
 145 150 155 160
 Gln Ala Asp Glu Gly Gln
 165

<210> 41
 <211> 1845
 <212> DNA
 <213> Neisseria meningitidis

<400> 41
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 gtatctgccg ccggaggcgg tgcgggggat atgaaacagc cgaaggaagt cggaaggtt 120
 ttcagaaagc agcagcgtaa cagcgaggaa gaaatcaaaa acgaacgcgc acggcttgcg 180
 gcagtgggagc agcgggttaa tcagatatat acgttgctgg gaggggaaac cgccttgcaa 240
 aaggggcagg cgggaacggc tctggcaacc tatatgctga tgttggaacg cacaaaatcc 300
 cccgaagtgc ccgaacgcgc cttggaaatg gccgtgtcgc tgaacgcgtt tgaacaggcg 360
 gaaatgattt atcagaaatg gcggcagatt gagcctatac cgggtaaggc gcaaaaacgg 420

gcgggggtggc	tgcggaacgt	gctgagggaa	agaggaaatc	agcatctgga	cggactggaa	480
gaagtgcctg	ctcaggcgga	cgaaggacag	aaccgcaggg	tgtttttatt	gttggcacaa	540
gccgccgtgc	aacaggacgg	gttggcgcaa	aaagcatcga	aagcggttcg	ccgcgcggcg	600
ttgaaatatg	aacatctgcc	cgaagcggcg	gttgccgatg	tggtgttcag	cgtacagga	660
cgcgaaaagg	aaaaggcaat	cggagctttg	cagcgtttgg	cgaagctcga	tacggaaata	720
ttgcccccca	ctttaatgac	gttgcgctctg	actgcacgca	aatatcccga	aatactcgac	780
ggctttttcg	agcagacaga	cacccaaaac	ctttcggccg	tctggcagga	aatggaaatt	840
atgaatctgg	tttccctgca	caggctggat	gatgcctatg	cgcgtttgaa	cgtgctgttg	900
gaacgcaatc	cgaatgcaga	cctgtatatt	caggcagcga	tattggcggc	aaaccgaaaa	960
gaaggtgctt	ccgttatcga	cggctacgcc	gaaaaggcat	acggcagggg	gacggaggaa	1020
cagcggagca	gggcggcgct	aacggcggcg	atgatgtatg	ccgaccgcag	ggattacgcc	1080
aaagtcaggc	agtggctgaa	aaaagtatcc	gcgcgggaat	acctgttcga	caaagggtgtg	1140
ctggcggctg	cggcggctgt	cgagttggac	ggcggcaggg	cggctttgcg	gcagatcggc	1200
aggggtgcga	aacttcccga	acagcagggg	cggatatttta	cggcagacaa	tttgtccaaa	1260
atacagatgc	tcgccctgtc	gaagctgccc	gataaacggg	aggctttgag	ggggttggac	1320
aagattatcg	aaaaaccgcc	tgccggcagt	aatacagagt	tacaggcaga	ggcattggta	1380
cagcggtcag	ttgtttacga	tcggcttggc	aagcggaaaa	aatgatttcc	agatcttgaa	1440
agggcgttca	ggcttgaccc	cgataacgct	cagattatga	ataatctggg	ctacagcctg	1500
ctgaccgatt	ccaaacgttt	ggacgaaggt	ttcgccctgc	ttcagacggc	ataccaaatc	1560
aaccggagc	ataccgtgtg	caacgacagc	ataggctggg	cgtattacct	gaaaggcgac	1620
gcggaaaagc	cgctgccgta	tctgcggtat	tcgtttgaaa	acgaccccga	gcccggaagt	1680
gccgcccatt	tgggcgaaagt	gttggtgggca	ttgggcgaac	gcgatcaggc	ggttgacgta	1740
tggacgcagg	cggcacacct	tacgggagac	aagaaaatat	ggcgggaaac	gctcaaacgt	1800
cacggcatcg	cattgccccca	accttcccga	aaacctcgga	aataa		1845

<210> 42
 <211> 614
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 42
 Met Leu Pro Asn Arg Phe Lys Met Leu Thr Val Leu Thr Ala Thr Leu
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 Ile Ala Gly Gln Val Ser Ala Ala Gly Gly Gly Ala Gly Asp Met Lys
 20 25 30
 Gln Pro Lys Glu Val Gly Lys Val Phe Arg Lys Gln Gln Arg Tyr Ser
 35 40 45
 Glu Glu Glu Ile Lys Asn Glu Arg Ala Arg Leu Ala Ala Val Gly Glu
 50 55 60
 Arg Val Asn Gln Ile Phe Thr Leu Leu Gly Gly Glu Thr Ala Leu Gln
 65 70 75 80
 Lys Gly Gln Ala Gly Thr Ala Leu Ala Thr Tyr Met Leu Met Leu Glu
 85 90 95
 Arg Thr Lys Ser Pro Glu Val Ala Glu Arg Ala Leu Glu Met Ala Val
 100 105 110
 Ser Leu Asn Ala Phe Glu Gln Ala Glu Met Ile Tyr Gln Lys Trp Arg
 115 120 125
 Gln Ile Glu Pro Ile Pro Gly Lys Ala Gln Lys Arg Ala Gly Trp Leu

130	135	140
Arg Asn Val Leu Arg Glu Arg Gly Asn Gln His Leu Asp Gly Leu Glu 145 150 155 160		
Glu Val Leu Ala Gln Ala Asp Glu Gly Gln Asn Arg Arg Val Phe Leu 165 170 175		
Leu Leu Ala Gln Ala Ala Val Gln Gln Asp Gly Leu Ala Gln Lys Ala 180 185 190		
Ser Lys Ala Val Arg Arg Ala Ala Leu Lys Tyr Glu His Leu Pro Glu 195 200 205		
Ala Ala Val Ala Asp Val Val Phe Ser Val Gln Gly Arg Glu Lys Glu 210 215 220		
Lys Ala Ile Gly Ala Leu Gln Arg Leu Ala Lys Leu Asp Thr Glu Ile 225 230 235 240		
Leu Pro Pro Thr Leu Met Thr Leu Arg Leu Thr Ala Arg Lys Tyr Pro 245 250 255		
Glu Ile Leu Asp Gly Phe Phe Glu Gln Thr Asp Thr Gln Asn Leu Ser 260 265 270		
Ala Val Trp Gln Glu Met Glu Ile Met Asn Leu Val Ser Leu His Arg 275 280 285		
Leu Asp Asp Ala Tyr Ala Arg Leu Asn Val Leu Leu Glu Arg Asn Pro 290 295 300		
Asn Ala Asp Leu Tyr Ile Gln Ala Ala Ile Leu Ala Ala Asn Arg Lys 305 310 315 320		
Glu Gly Ala Ser Val Ile Asp Gly Tyr Ala Glu Lys Ala Tyr Gly Arg 325 330 335		
Gly Thr Glu Glu Gln Arg Ser Arg Ala Ala Leu Thr Ala Ala Met Met 340 345 350		
Tyr Ala Asp Arg Arg Asp Tyr Ala Lys Val Arg Gln Trp Leu Lys Lys 355 360 365		
Val Ser Ala Pro Glu Tyr Leu Phe Asp Lys Gly Val Leu Ala Ala Ala 370 375 380		
Ala Ala Val Glu Leu Asp Gly Gly Arg Ala Ala Leu Arg Gln Ile Gly 385 390 395 400		
Arg Val Arg Lys Leu Pro Glu Gln Gln Gly Arg Tyr Phe Thr Ala Asp 405 410 415		
Asn Leu Ser Lys Ile Gln Met Leu Ala Leu Ser Lys Leu Pro Asp Lys 420 425 430		

Arg Glu Ala Leu Arg Gly Leu Asp Lys Ile Ile Glu Lys Pro Pro Ala
 435 440 445
 Gly Ser Asn Thr Glu Leu Gln Ala Glu Ala Leu Val Gln Arg Ser Val
 450 455 460
 Val Tyr Asp Arg Leu Gly Lys Arg Lys Lys Met Ile Ser Asp Leu Glu
 465 470 475 480
 Arg Ala Phe Arg Leu Ala Pro Asp Asn Ala Gln Ile Met Asn Asn Leu
 485 490 495
 Gly Tyr Ser Leu Leu Thr Asp Ser Lys Arg Leu Asp Glu Gly Phe Ala
 500 505 510
 Leu Leu Gln Thr Ala Tyr Gln Ile Asn Pro Asp Asp Thr Ala Val Asn
 515 520 525
 Asp Ser Ile Gly Trp Ala Tyr Tyr Leu Lys Gly Asp Ala Glu Ser Ala
 530 535 540
 Leu Pro Tyr Leu Arg Tyr Ser Phe Glu Asn Asp Pro Glu Pro Glu Val
 545 550 555 560
 Ala Ala His Leu Gly Glu Val Leu Trp Ala Leu Gly Glu Arg Asp Gln
 565 570 575
 Ala Val Asp Val Trp Thr Gln Ala Ala His Leu Thr Gly Asp Lys Lys
 580 585 590
 Ile Trp Arg Glu Thr Leu Lys Arg His Gly Ile Ala Leu Pro Gln Pro
 595 600 605
 Ser Arg Lys Pro Arg Lys
 610

<210> 43
 <211> 1839
 <212> DNA
 <213> Neisseria meningitidis

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 <222> (217)..(217)
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<222> (958)..(958)
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<222> (1609)..(1609)
<223> N= Unknown

<400> 43
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aagcagcagc gttacagcga ggaagaaatc aaaaacgaac gcgcacggct tgcggcagtg 180
ggcgagcggg ttaatcagat atttacgttg ctgggagggg aaaccgcctt gcaaaagggg 240
caggcgggaa cggctctggc aacctatatg ctgatgttgg aacgcacaaa atccccgaa 300
gtcgccgaac gcgccttggg aatggccgtg tcnctgaacg cgtttgaaca ggcggaaatg 360
atztatcaga aatggcggca gattgagcct ataccgggta aggcgcaaaa acgggcgggg 420
tggttcgcga acgtgctgag ggaaagagga aatcagcatc tagacggact ggaagaantg 480
ctggctcagg cggacgaang acagaaccgc aggggtgtttt tattgttggc acaagccgcc 540
gtgcaacagg acgggttggc gcaaaaagca tcgaaagcgg ttcgccgcgc ggcgttgaga 600
tatgaacatc tgcccgaagc ggcggttgcc gatgtggtgt tcagcgtaca ggnacgcgaa 660
aaggaaaagg caatcggagc tttgcagcgt ttggcgaagc tcgatacggg aatattgccc 720
cccactttaa tgacgttgcg tctgactgca cgcaaatact ccgaaatact cgacggcttt 780
ttcgagcaga cagacaccca aaacctttcg gccgtctggc aggaaatgga aattatgaat 840
ctggtttccc tgcacaggct ggatgatgcc tatgcgcgtt tgaacgtgct gttggaacgc 900
aatccgaatg cagacctgta tattcaggca gcgatattgg cggcaaaccg aaaagaangt 960
gcttccggtt tcgacggcta cccgaaaaag gcatacggca gggggacggg ggaacagcgg 1020
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aggcagtggg tgaaaaaagt gtccgcgcgg gaataacctg tcgacaaaagg tgtgctggcg 1140
gctgcggcgg ctgtcgagtt ggacngcggc agggcggctt tgcggcagat cggcagggtg 1200
cggaaacttc ccgaacagca ggggcggtat ttacggcag acaatttgtc caaaatacag 1260
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gattccaaac gtttggacga aggcttcgcc ctgcttcaga cggcatacca aatcaaccgg 1560
gacgataccg ctgtcaacga cagcataggg tgggcgtatt acctgaaang cgacgcggaa 1620
agcgcgctgc cgtatctgcg gtattcgttt gaaaacgacc ccgagcccga agttgccgcc 1680
catttgggcg aagtgttgtg ggcattgggc gaacgcgatc aggcggttga cgtatggacg 1740
caggcggcac accttacggg agacaagaaa atatggcggg aaacgctcaa acgtcacggc 1800

atcgcatgtgc cccaaccttc ccgaaaacct cggaataa

1839

<210> 44
<211> 612
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (73)..(73)
<223> Xaa= any amino acid

<220>
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<222> (160)..(160)
<223> Xaa= any amino acid

<220>
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<222> (167)..(167)
<223> Xaa= any amino acid

<220>
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<222> (218)..(218)
<223> Xaa= any amino acid

<220>
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<222> (320)..(320)
<223> Xaa= any amino acid

<220>
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<222> (389)..(389)
<223> Xaa= any amino acid

<220>
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<222> (537)..(537)
<223> Xaa= any amino acid

<400> 44
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1 5 10 15

Leu Ala Gly Gln Ala Tyr Ala Ala Gly Ala Ala Asp Ala Lys Pro Pro
20 25 30

Lys Glu Val Gly Lys Val Phe Arg Lys Gln Gln Arg Tyr Ser Glu Glu
35 40 45

Glu Ile Lys Asn Glu Arg Ala Arg Leu Ala Ala Val Gly Glu Arg Val
50 55 60

Asn Gln Ile Phe Thr Leu Leu Gly Xaa Glu Thr Ala Leu Gln Lys Gly

65	70	75	80
Gln Ala Gly Thr	Ala Leu Ala Thr Tyr Met	Leu Met Leu Glu Arg Thr	
	85	90	95
Lys Ser Pro Glu Val Ala Glu Arg Ala Leu Glu Met Ala Val Ser Leu			
	100	105	110
Asn Ala Phe Glu Gln Ala Glu Met Ile Tyr Gln Lys Trp Arg Gln Ile			
	115	120	125
Glu Pro Ile Pro Gly Lys Ala Gln Lys Arg Ala Gly Trp Leu Arg Asn			
	130	135	140
Val Leu Arg Glu Arg Gly Asn Gln His Leu Asp Gly Leu Glu Glu Xaa			
	145	150	155
Leu Ala Gln Ala Asp Glu Xaa Gln Asn Arg Arg Val Phe Leu Leu Leu			
	165	170	175
Ala Gln Ala Ala Val Gln Gln Asp Gly Leu Ala Gln Lys Ala Ser Lys			
	180	185	190
Ala Val Arg Arg Ala Ala Leu Arg Tyr Glu His Leu Pro Glu Ala Ala			
	195	200	205
Val Ala Asp Val Val Phe Ser Val Gln Xaa Arg Glu Lys Glu Lys Ala			
	210	215	220
Ile Gly Ala Leu Gln Arg Leu Ala Lys Leu Asp Thr Glu Ile Leu Pro			
	225	230	235
Pro Thr Leu Met Thr Leu Arg Leu Thr Ala Arg Lys Tyr Pro Glu Ile			
	245	250	255
Leu Asp Gly Phe Phe Glu Gln Thr Asp Thr Gln Asn Leu Ser Ala Val			
	260	265	270
Trp Gln Glu Met Glu Ile Met Asn Leu Val Ser Leu His Arg Leu Asp			
	275	280	285
Asp Ala Tyr Ala Arg Leu Asn Val Leu Leu Glu Arg Asn Pro Asn Ala			
	290	295	300
Asp Leu Tyr Ile Gln Ala Ala Ile Leu Ala Ala Asn Arg Lys Glu Xaa			
	305	310	315
Ala Ser Val Ile Asp Gly Tyr Ala Glu Lys Ala Tyr Gly Arg Gly Thr			
	325	330	335
Gly Glu Gln Arg Gly Arg Ala Ala Met Thr Ala Ala Met Ile Tyr Ala			
	340	345	350
Asp Arg Arg Asp Tyr Thr Lys Val Arg Gln Trp Leu Lys Lys Val Ser			
	355	360	365

Ala Pro Glu Tyr Leu Phe Asp Lys Gly Val Leu Ala Ala Ala Ala Ala
 370 375 380
 Val Glu Leu Asp Xaa Gly Arg Ala Ala Leu Arg Gln Ile Gly Arg Val
 385 390 395 400
 Arg Lys Leu Pro Glu Gln Gln Gly Arg Tyr Phe Thr Ala Asp Asn Leu
 405 410 415
 Ser Lys Ile Gln Met Phe Ala Leu Ser Lys Leu Pro Asp Lys Arg Glu
 420 425 430
 Ala Leu Arg Gly Leu Asp Lys Ile Ile Glu Lys Pro Pro Ala Gly Ser
 435 440 445
 Asn Thr Glu Leu Gln Ala Glu Ala Leu Val Gln Arg Ser Val Val Tyr
 450 455 460
 Asp Arg Leu Gly Lys Arg Lys Lys Met Ile Ser Asp Leu Glu Arg Ala
 465 470 475 480
 Phe Arg Leu Ala Pro Asp Asn Ala Gln Ile Met Asn Asn Leu Gly Tyr
 485 490 495
 Ser Leu Leu Ser Asp Ser Lys Arg Leu Asp Glu Gly Phe Ala Leu Leu
 500 505 510
 Gln Thr Ala Tyr Gln Ile Asn Pro Asp Asp Thr Ala Val Asn Asp Ser
 515 520 525
 Ile Gly Trp Ala Tyr Tyr Leu Lys Xaa Asp Ala Glu Ser Ala Leu Pro
 530 535 540
 Tyr Leu Arg Tyr Ser Phe Glu Asn Asp Pro Glu Pro Glu Val Ala Ala
 545 550 555 560
 His Leu Gly Glu Val Leu Trp Ala Leu Gly Glu Arg Asp Gln Ala Val
 565 570 575
 Asp Val Trp Thr Gln Ala Ala His Leu Thr Gly Asp Lys Lys Ile Trp
 580 585 590
 Arg Glu Thr Leu Lys Arg His Gly Ile Ala Leu Pro Gln Pro Ser Arg
 595 600 605
 Lys Pro Arg Lys
 610

<210> 45
 <211> 8
 <212> DNA
 <213> *Neisseria gonorrhoeae*
 <220>
 <221> misc_feature
 <222> (1)..(8)

<223> N= Unknown

<400> 45
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8

<210> 46
<211> 300
<212> PRT
<213> Neisseria gonorrhoeae

<400> 46

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Ala	Leu	Leu	Ala	Gly	Gln	Ala	Tyr	Ala	Ala	Gly	Ala	Ala	Asp	Val	Glu	
			20					25					30			
Leu	Pro	Lys	Glu	Val	Gly	Lys	Val	Leu	Arg	Lys	His	Arg	Arg	Tyr	Ser	
		35					40					45				
Glu	Glu	Glu	Ile	Lys	Asn	Glu	Arg	Ala	Arg	Leu	Ala	Ala	Val	Gly	Glu	
	50					55					60					
Arg	Val	Asn	Arg	Val	Phe	Thr	Leu	Leu	Gly	Gly	Glu	Thr	Ala	Leu	Gln	
65					70					75					80	
Lys	Gly	Gln	Ala	Gly	Thr	Ala	Leu	Ala	Thr	Tyr	Met	Leu	Met	Leu	Glu	
				85					90						95	
Arg	Thr	Lys	Ser	Pro	Glu	Val	Ala	Glu	Arg	Ala	Leu	Glu	Met	Ala	Val	
			100					105					110			
Ser	Leu	Asn	Ala	Phe	Glu	Gln	Ala	Glu	Met	Ile	Tyr	Gln	Lys	Trp	Arg	
		115					120					125				
Gln	Ile	Glu	Pro	Ile	Pro	Gly	Glu	Ala	Gln	Lys	Pro	Ala	Gly	Trp	Leu	
	130					135					140					
Arg	Asn	Val	Leu	Lys	Glu	Gly	Gly	Asn	Pro	His	Leu	Asp	Arg	Leu	Glu	
145					150				155						160	
Glu	Val	Pro	Ala	Gln	Ser	Asp	Tyr	Val	His	Gln	Pro	Met	Ile	Phe	Leu	
				165					170					175		
Leu	Leu	Val	Gln	Ala	Ala	Val	Gln	His	Gly	Gly	Val	Ala	Gln	Lys	Pro	
			180					185					190			
Ser	Lys	Ala	Val	Arg	Pro	Ala	Ala	Tyr	Asn	Tyr	Glu	Val	Leu	Pro	Glu	
		195				200						205				
Thr	Ala	Gly	Ala	Asp	Ala	Val	Phe	Cys	Val	Gln	Gly	Pro	Gln	Tyr	Glu	
	210					215					220					
Lys	Ala	Ile	Gln	Ser	Phe	Pro	Pro	Cys	Gly	Arg	Asn	Pro	Gln	Thr	Glu	
225					230					235					240	

Asn Ile Ala Pro Pro Phe Asn Glu Leu Phe Arg Pro Thr Ala Arg Pro
245 250 255

Ile Ser Pro Lys Leu Leu Gln Arg Phe Phe Arg Thr Glu Pro Asn Leu
260 265 270

Ala Lys Pro Phe Arg Pro Pro Gly Pro Glu Met Glu Thr Tyr Gln Thr
275 280 285

Gly Phe Pro Arg Pro Leu Thr Arg Asn Asn Pro Thr
290 295 300

<210> 47
<211> 1839
<212> DNA
<213> Neisseria gonorrhoeae

<400> 47
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gcgtatgctg ccggcgcggc ggatgtggag ctgccgaagg aagtcggaaa ggttttaagg 120
aaacatcggc gttacagcga ggaagaaatc aaaaacgaac gcgcacggct tgcggcagtg 180
ggcgaacggg tcaacagggg gtttacgctg ttgggcgggtg aaacggcttt gcagaaaggg 240
caggcgggaa cggctctggc aacctatatg ctgatgttgg aacgcacaaa atccccgaa 300
gtcgcgaac gcgccttggg aatggccgtg tgcgtgaacg cgtttgaaca ggcggaaatg 360
atztatcaga aatggcggca gatcgagcct ataccgggtg aggcgcaaaa accggcgggg 420
tggctgcgga acgtattgaa ggaaggggga aatcagcatc tggacgggtt gaaagaggtg 480
ctggcgcaat cggacgatgt gcaaaaacgc aggatatttt tgctgctggg gcaagccgcc 540
gtgcagcagg gtgggggtggc tcaaaaagca tcaaaagcgg ttcgccgtgc ggcgttgaag 600
tatgaacatc tgcccgaagc ggcgggttgc gatgcggtgt tcggcgtaaa gggacgcgaa 660
aaggaaaaagg caatcgaagc tttgcagcgt ttggcgaagc tcgatacggg aatattgccc 720
cccactttta tgacgttgcg tctgactgca cgcaaatact ccgaaatact cgacggcttt 780
ttcgagcaga cagacaccca aaacctttcg gccgtctggc aggaaatgga aattatgaat 840
ctgggtttccc tgcgtaagcc ggatgatgcc tatgcgcgtt tgaacgtgct gttggaacac 900
aaccggaatg caaacctgta tattcaggcg gcgatattgg cggcaaaccg aaaagaaggt 960
gcgtccgtta tcgacggcta cgccgaaaag gcatacggca gggggacggg ggaacagcgg 1020
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aggcagtggt tgaaaaaagt gtccgcgcgg gaatacctgt tcgacaaagg cgtgctggcg 1140
gctgcggcgg ctgccgaatt ggacggaggc cgggcggctt tgccggcagat cggcaggggtg 1200
cggaaacttc ccgaacagca ggggcgggtat ttacggcag acaatttgct caaaatacag 1260
atgctcgccc tgcgaagct gcccgcacaa cgggaagccc tgatcgggct gaacaacatc 1320
atcgccaaac tttcggcggc gggaagcagc gaaccttttg cgggaagcatt ggcacagcgt 1380
tccattattt acgaacagtt cggcaaacgg ggaaaaatga ttgccgacct tgaaaccgcg 1440
ctcaaactta cgcccataa tgcacaaatt atgaataatc tgggctacag cctgctttcc 1500
gattccaaac gtttggacga gggtttcgcc ctgcttcaga cggcatacca aatcaaccgg 1560
gacgataccg ccgttaacga cagcataggc tgggcgtatt acctgaaagg cgacgcggaa 1620
agcgcgctgc cgtatctgcg gtattcgttt gaaaacgacc ccgagcccga agttgccgcc 1680
catttgggcg aagtgttggt ggcattgggc gaacgcgatc aggcgggtga cgtatggacg 1740
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atcgcccttg cccgagccttc ccgaaaaccc cggaaataa 1839

<210> 48
<211> 612
<212> PRT
<213> Neisseria gonorrhoeae

<400> 48

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Leu	Ala	Gly	Gln	Ala	Tyr	Ala	Ala	Gly	Ala	Ala	Asp	Val	Glu	Leu	Pro	20	25	30	
Lys	Glu	Val	Gly	Lys	Val	Leu	Arg	Lys	His	Arg	Arg	Tyr	Ser	Glu	Glu	35	40	45	
Glu	Ile	Lys	Asn	Glu	Arg	Ala	Arg	Leu	Ala	Ala	Val	Gly	Glu	Arg	Val	50	55	60	
Asn	Arg	Val	Phe	Thr	Leu	Leu	Gly	Gly	Glu	Thr	Ala	Leu	Gln	Lys	Gly	65	70	75	80
Gln	Ala	Gly	Thr	Ala	Leu	Ala	Thr	Tyr	Met	Leu	Met	Leu	Glu	Arg	Thr	85	90	95	
Lys	Ser	Pro	Glu	Val	Ala	Glu	Arg	Ala	Leu	Glu	Met	Ala	Val	Ser	Leu	100	105	110	
Asn	Ala	Phe	Glu	Gln	Ala	Glu	Met	Ile	Tyr	Gln	Lys	Trp	Arg	Gln	Ile	115	120	125	
Glu	Pro	Ile	Pro	Gly	Glu	Ala	Gln	Lys	Pro	Ala	Gly	Trp	Leu	Arg	Asn	130	135	140	
Val	Leu	Lys	Glu	Gly	Gly	Asn	Gln	His	Leu	Asp	Gly	Leu	Lys	Glu	Val	145	150	155	160
Leu	Ala	Gln	Ser	Asp	Asp	Val	Gln	Lys	Arg	Arg	Ile	Phe	Leu	Leu	Leu	165	170	175	
Val	Gln	Ala	Ala	Val	Gln	Gln	Gly	Gly	Val	Ala	Gln	Lys	Ala	Ser	Lys	180	185	190	
Ala	Val	Arg	Arg	Ala	Ala	Leu	Lys	Tyr	Glu	His	Leu	Pro	Glu	Ala	Ala	195	200	205	
Val	Ala	Asp	Ala	Val	Phe	Gly	Val	Gln	Gly	Arg	Glu	Lys	Glu	Lys	Ala	210	215	220	
Ile	Glu	Ala	Leu	Gln	Arg	Leu	Ala	Lys	Leu	Asp	Thr	Glu	Ile	Leu	Pro	225	230	235	240
Pro	Thr	Leu	Met	Thr	Leu	Arg	Leu	Thr	Ala	Arg	Lys	Tyr	Pro	Glu	Ile	245	250	255	
Leu	Asp	Gly	Phe	Phe	Glu	Gln	Thr	Asp	Thr	Gln	Asn	Leu	Ser	Ala	Val	260	265	270	
Trp	Gln	Glu	Met	Glu	Ile	Met	Asn	Leu	Val	Ser	Leu	Arg	Lys	Pro	Asp	275	280	285	
Asp	Ala	Tyr	Ala	Arg	Leu	Asn	Val	Leu	Leu	Glu	His	Asn	Pro	Asn	Ala	290	295	300	

Asn	Leu	Tyr	Ile	Gln	Ala	Ala	Ile	Leu	Ala	Ala	Asn	Arg	Lys	Glu	Gly	
305					310					315					320	
Ala	Ser	Val	Ile	Asp	Gly	Tyr	Ala	Glu	Lys	Ala	Tyr	Gly	Arg	Gly	Thr	
				325					330					335		
Gly	Glu	Gln	Arg	Gly	Arg	Ala	Ala	Met	Thr	Ala	Ala	Met	Ile	Tyr	Ala	
				340				345					350			
Asp	Arg	Arg	Asp	Tyr	Ala	Lys	Val	Arg	Gln	Trp	Leu	Lys	Lys	Val	Ser	
		355					360					365				
Ala	Pro	Glu	Tyr	Leu	Phe	Asp	Lys	Gly	Val	Leu	Ala	Ala	Ala	Ala	Ala	
	370					375					380					
Ala	Glu	Leu	Asp	Gly	Gly	Arg	Ala	Ala	Leu	Arg	Gln	Ile	Gly	Arg	Val	
385				390						395					400	
Arg	Lys	Leu	Pro	Glu	Gln	Gln	Gly	Arg	Tyr	Phe	Thr	Ala	Asp	Asn	Leu	
				405				410						415		
Ser	Lys	Ile	Gln	Met	Leu	Ala	Leu	Ser	Lys	Leu	Pro	Asp	Lys	Arg	Glu	
			420					425					430			
Ala	Leu	Ile	Gly	Leu	Asn	Asn	Ile	Ile	Ala	Lys	Leu	Ser	Ala	Ala	Gly	
	435					440						445				
Ser	Thr	Glu	Pro	Leu	Ala	Glu	Ala	Leu	Ala	Gln	Arg	Ser	Ile	Ile	Tyr	
	450					455					460					
Glu	Gln	Phe	Gly	Lys	Arg	Gly	Lys	Met	Ile	Ala	Asp	Leu	Glu	Thr	Ala	
465					470					475					480	
Leu	Lys	Leu	Thr	Pro	Asp	Asn	Ala	Gln	Ile	Met	Asn	Asn	Leu	Gly	Tyr	
				485				490						495		
Ser	Leu	Leu	Ser	Asp	Ser	Lys	Arg	Leu	Asp	Glu	Gly	Phe	Ala	Leu	Leu	
			500					505					510			
Gln	Thr	Ala	Tyr	Gln	Ile	Asn	Pro	Asp	Asp	Thr	Ala	Val	Asn	Asp	Ser	
		515					520					525				
Ile	Gly	Trp	Ala	Tyr	Tyr	Leu	Lys	Gly	Asp	Ala	Glu	Ser	Ala	Leu	Pro	
	530					535					540					
Tyr	Leu	Arg	Tyr	Ser	Phe	Glu	Asn	Asp	Pro	Glu	Pro	Glu	Val	Ala	Ala	
545					550				555					560		
His	Leu	Gly	Glu	Val	Leu	Trp	Ala	Leu	Gly	Glu	Arg	Asp	Gln	Ala	Val	
				565					570				575			
Asp	Val	Trp	Thr	Gln	Ala	Ala	His	Leu	Arg	Gly	Asp	Lys	Lys	Ile	Trp	
			580					585					590			
Arg	Glu	Thr	Leu	Lys	Arg	Tyr	Gly	Ile	Ala	Leu	Pro	Glu	Pro	Ser	Arg	
	595						600					605				

Lys Pro Arg Lys
610

<210> 49
<211> 724
<212> DNA
<213> Neisseria meningitidis

<400> 49
aacctctacg ccggcccgca gaccacatcc gtcacgcaa acatcgccga caacctgcaa 60
ctggccaaag actacggcaa agtacactgg ttcgcctccc cgctcttctg gtcctgaac 120
caactgcaca acatcatcgg caactggggc tgggcgatta tcgttttaac catcatcgtc 180
aaagccgtac tgtatccatt gaccaacgcc tcttaccgct ctatggcgaa aatgcgtgcc 240
gccgcaccca aactgcaagc catcaaagag aaatacggcg acgaccgat ggcgcaacaa 300
caggcgatga tgcagcttta cacagacgag aaaatcaacc cgactgggcg gctgcctgcc 360
tatgctgttg caaatccccg tcttcatcgg attgtattgg gcattgttcg cctccgtaga 420
attgcgccag gcaccttggc tgggttgat taccgacctc agccgcgccg acccctacta 480
catcctgccc atcattatgg cggcaacgat gttcgcccaa acttatctga acccgccgcc 540
gaccgaccg atgcaggcga aaatgatgaa aatcatgccg ttggttttct csgwcrtggt 600
cttcttcttc cctgcgggks tggattgta ctgggtagtc aacaacctcc tgaccatcgc 660
ccagcaatgg cacatcaacc gcagcatcga aaaacaacgc gcccaaggcg aagtcgtttc 720
ctaa 724

<210> 50
<211> 240
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (198)..(199)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (207)..(207)
<223> Xaa= any amino acid

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Asp Asn Leu Gln Leu Ala Lys Asp Tyr Gly Lys Val His Trp Phe Ala
20 25 30
Ser Pro Leu Phe Trp Leu Leu Asn Gln Leu His Asn Ile Ile Gly Asn
35 40 45
Trp Gly Trp Ala Ile Ile Val Leu Thr Ile Ile Val Lys Ala Val Leu
50 55 60
Tyr Pro Leu Thr Asn Ala Ser Tyr Arg Ser Met Ala Lys Met Arg Ala
65 70 75 80
Ala Ala Pro Lys Leu Gln Ala Ile Lys Glu Lys Tyr Gly Asp Asp Arg
85 90 95

Met Ala Gln Gln Gln Ala Met Met Gln Leu Tyr Thr Asp Glu Lys Ile
100 105 110

Asn Pro Leu Gly Gly Cys Leu Pro Met Leu Leu Gln Ile Pro Val Phe
115 120 125

Ile Gly Leu Tyr Trp Ala Leu Phe Ala Ser Val Glu Leu Arg Gln Ala
130 135 140

Pro Trp Leu Gly Trp Ile Thr Asp Leu Ser Arg Ala Asp Pro Tyr Tyr
145 150 155 160

Ile Leu Pro Ile Ile Met Ala Ala Thr Met Phe Ala Gln Thr Tyr Leu
165 170 175

Asn Pro Pro Pro Thr Asp Pro Met Gln Ala Lys Met Met Lys Ile Met
180 185 190

Pro Leu Val Phe Ser Xaa Xaa Phe Phe Phe Phe Pro Ala Gly Xaa Val
195 200 205

Leu Tyr Trp Val Val Asn Asn Leu Leu Thr Ile Ala Gln Gln Trp His
210 215 220

Ile Asn Arg Ser Ile Glu Lys Gln Arg Ala Gln Gly Glu Val Val Ser
225 230 235 240

<210> 51
<211> 1638
<212> DNA
<213> Neisseria meningitidis

<400> 51

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aaatacaaag	caaccggcga	cgaaaaataa	ccgtttcatcc	tgtttgccga	cggcaaagaa	300
tacacctacg	tcgccaatc	cgaacttttg	gacgcgcagg	gcaacaacat	tctaaaaggc	360
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gcgaaaatgc	gtgcccgcgc	acccaaactg	aagagaaata	cggcgacgac		1200
cgtatggcgc	aacaacaggc	gatgatgcag	ctttacacag	acgagaaaat	caaccgcgtg	1260
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 <212> PRT
 <213> *Neisseria meningitidis*

<400> 52

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Thr	Ala	Asn	Leu	Ser	Ala	Asp	Tyr	Arg	Ile	Val	Arg	Asp	His	Ser	Glu	
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Pro	Glu	Gly	Gln	Gly	Tyr	Phe	Thr	His	Ser	Tyr	Val	Gly	Pro	Val	Val	
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 Ser Val Pro Leu Ala Ala Ile Gln Asn Gly Ala Lys Ala Glu Ala Ser
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 Ile Asn Leu Tyr Ala Gly Pro Gln Thr Thr Ser Val Ile Ala Asn Ile
 305 310 315 320
 Ala Asp Asn Leu Gln Leu Ala Lys Asp Tyr Gly Lys Val His Trp Phe
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 Ala Ser Pro Leu Phe Trp Leu Leu Asn Gln Leu His Asn Ile Ile Gly
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 Asn Trp Gly Trp Ala Ile Ile Val Leu Thr Ile Ile Val Lys Ala Val
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 385 390 395 400
 Arg Met Ala Gln Gln Gln Ala Met Met Gln Leu Tyr Thr Asp Glu Lys
 405 410 415
 Ile Asn Pro Leu Gly Gly Cys Leu Pro Met Leu Leu Gln Ile Pro Val
 420 425 430
 Phe Ile Gly Leu Tyr Trp Ala Leu Phe Ala Ser Val Glu Leu Arg Gln
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 Ala Pro Trp Leu Gly Trp Ile Thr Asp Leu Ser Arg Ala Asp Pro Tyr
 450 455 460
 Tyr Ile Leu Pro Ile Ile Met Ala Ala Thr Met Phe Ala Gln Thr Tyr
 465 470 475 480
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 485 490 495
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 Val Leu Tyr Trp Val Val Asn Asn Leu Leu Thr Ile Ala Gln Gln Trp
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Ser
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<213> Neisseria meningitidis

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gacacgggttc aagccgtcat tgatgaaaaa agcggcgacc tgcgcgggtt gaccctgctc 240
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ctgagcgcac ctgaaacacg cggctctgaaa atcgacaaaag tttatacttt caccaaaggc 480
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<213> Neisseria meningitidis

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Pro Gln Gln Thr Ala Gln Gln Gln Ala Val Xaa Ala Ser Ala Glu Ala
35 40 45
Ala Leu Ala Pro Xaa Xaa Pro Ile Thr Val Thr Thr Asp Thr Val Gln
50 55 60
Ala Val Ile Asp Glu Lys Ser Gly Asp Leu Arg Arg Leu Thr Leu Leu
65 70 75 80
Lys Tyr Lys Ala Thr Gly Asp Xaa Asn Lys Pro Phe Ile Leu Phe Gly
85 90 95
Asp Gly Lys Xaa Tyr Thr Tyr Xaa Ala Xaa Ser Glu Leu Leu Asp Ala
100 105 110
Gln Gly Asn Asn Ile Leu Lys Gly Ile Gly Phe Ser Ala Pro Lys Lys

115					120					125				
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Glu Thr Arg Gly Leu Lys Ile Asp Lys Val Tyr Thr Phe Thr Lys Gly	145				150					155				160
Ser Tyr Leu Val Asn Val Arg Phe Asp Ile Ala Asn Gly Ser Gly Gln				165					170					175
Thr Ala Asn Leu Ser Ala Asp Tyr Arg Ile Val Arg Asp His Ser Glu			180					185					190	
Pro Glu Gly Gln Gly Tyr Phe Thr His Ser Tyr Val Gly Pro Val Val	195						200				205			
Tyr Thr Pro Glu Gly Asn Phe Gln Lys Val Ser Phe Ser Asp Leu Asp	210					215					220			
Asp Asp Ala Xaa Ser Gly Lys Ser Glu Ala Glu Tyr Ile Arg Lys Thr	225				230					235				240
Xaa Thr Gly Trp Leu Gly Met Ile Glu His His Phe Met Ser Thr Trp				245					250					255
Ile Leu Gln Pro Lys Gly Gly Gln Ser Val Cys Ala Ala Gly Asp Cys			260					265					270	
Xaa Xaa Asp Ile Lys Arg Arg Asn Asp Lys Leu Tyr Ser Thr Ser Val	275						280					285		
Ser Val Pro Leu Ala Ala Ile Gln Asn Gly Ala Lys Ser Xaa Ala Ser	290					295				300				
Ile Asn Leu Tyr Ala Gly Pro Gln Thr Thr Ser Val Ile Ala Asn Ile	305				310					315				320
Ala Asp Asn Leu Gln Leu Xaa Lys Asp Tyr Gly Lys Val His Trp Phe			325					330					335	
Ala Ser Pro Leu Phe Trp Leu Leu Asn Gln Leu His Asn Ile Ile Gly			340				345					350		
Asn Trp Gly Trp Ala Ile Ile Val Leu Thr Ile Ile Val Lys Ala Val	355						360					365		
Leu Tyr Pro Leu Thr Asn Ala Ser Tyr Arg Ser Met Ala Lys Met Arg	370				375					380				
Ala Ala Ala Pro Lys Leu Gln Ala Ile Lys Glu Lys Tyr Gly Asp Asp	385				390				395					400
Arg Met Ala Gln Gln Gln Ala Met Met Gln Leu Tyr Thr Asp Glu Lys			405					410					415	

Ile Asn Pro Leu Gly Gly Cys Leu Pro Met Leu Leu Gln Ile Pro Val
 420 425 430
 Phe Ile Gly Leu Tyr Trp Ala Leu Phe Ala Ser Val Glu Leu Arg Gln
 435 440 445
 Ala Pro Trp Leu Gly Trp Ile Thr Asp Leu Ser Arg Ala Asp Pro Tyr
 450 455 460
 Tyr Ile Leu Pro Ile Ile Met Ala Ala Thr Met Phe Ala Gln Thr Tyr
 465 470 475 480
 Leu Asn Pro Pro Pro Thr Asp Pro Met Gln Ala Lys Met Met Lys Ile
 485 490 495
 Met Pro Leu Val Xaa Ser Xaa Xaa Phe Phe Xaa Phe Pro Ala Gly Leu
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 Val Leu Tyr Trp Val Ile Asn Asn Leu Leu Thr Ile Ala Gln Gln Trp
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Ser
545

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 35 40 45
 Ile Gly Asn Trp Gly Trp Ala Ile Val Val Leu Thr Ile Ile Val Lys

50

55

60

Ala Val Leu Tyr Pro Leu Thr Asn Ala Ser Tyr Arg Ser Met Ala Lys
65 70 75 80

Met Arg Ala Ala Ala Pro Glu Leu Gln Thr Ile Lys Glu Lys Tyr Gly
85 90 95

Asp Asp Arg Met Ala Gln Gln Gln Ala Met Met Gln Leu Phe Glu Asp
100 105 110

Glu Glu Ile Asn Pro Leu Gly Gly Cys Leu Pro Met Leu Leu Gln Ile
115 120 125

Pro Val Phe Ile Gly Leu Tyr Trp Ala Leu Phe Ala Ser Val Glu Leu
130 135 140

Arg Gln Ala Pro Trp Leu Gly Trp Ile Thr Asp Leu Ser Arg Ala Asp
145 150 155 160

Pro Tyr Tyr Ile Leu Pro Ile Ile Met Ala Ala Thr Met Phe Ala Gln
165 170 175

Thr Tyr Leu Asn Pro Pro Pro Thr Asp Pro Met Gln Ala Lys Met Met
180 185 190

Lys Ile Met Pro Leu Val Phe Ser Val Met Phe Phe Phe Phe Pro Ala
195 200 205

Gly Leu Val Leu Tyr Trp Val Val Asn Asn Leu Leu Thr Ile Ala Gln
210 215 220

Gln Trp His Ile Asn Arg Ser Ile Glu Lys Gln Arg Ala Gln Gly Glu
225 230 235 240

Val Val Ser

<210> 57

<211> 1641

<212> DNA

<213> *Neisseria gonorrhoeae*

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atcggcttta	gcgcaccgaa	aaaacagtac	accctcaacg	gcgacacagt	cgaagtccgc	420
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 35 40 45
 Ala Leu Ala Pro Ala Thr Pro Ile Thr Val Thr Thr Asp Thr Val Gln
 50 55 60
 Ala Val Ile Asp Glu Lys Ser Gly Asp Leu Arg Arg Leu Thr Leu Leu
 65 70 75 80
 Lys Tyr Lys Ala Thr Gly Asp Glu Asn Lys Pro Phe Val Leu Phe Gly
 85 90 95
 Asp Gly Lys Glu Tyr Thr Tyr Val Ala Gln Ser Glu Leu Leu Asp Ala
 100 105 110
 Gln Gly Asn Asn Ile Leu Lys Gly Ile Gly Phe Ser Ala Pro Lys Lys
 115 120 125
 Gln Tyr Thr Leu Asn Gly Asp Thr Val Glu Val Arg Leu Ser Ala Pro
 130 135 140
 Glu Thr Asn Gly Leu Lys Ile Asp Lys Val Tyr Thr Phe Thr Lys Asp
 145 150 155 160
 Ser Tyr Leu Val Asn Val Arg Phe Asp Ile Ala Asn Gly Ser Gly Gln
 165 170 175

Thr	Ala	Asn	Leu	Ser	Ala	Asp	Tyr	Arg	Ile	Val	Arg	Asp	His	Ser	Glu	180	185	190	
Pro	Glu	Gly	Gln	Gly	Tyr	Phe	Thr	His	Ser	Tyr	Val	Gly	Pro	Val	Val	195	200	205	
Tyr	Thr	Pro	Glu	Gly	Asn	Phe	Gln	Lys	Val	Ser	Phe	Ser	Asp	Leu	Asp	210	215	220	
Asp	Asp	Ala	Lys	Ser	Gly	Lys	Ser	Glu	Ala	Glu	Tyr	Ile	Arg	Lys	Thr	225	230	235	240
Pro	Thr	Gly	Trp	Leu	Gly	Met	Ile	Glu	His	His	Phe	Met	Ser	Thr	Trp	245	250	255	
Ile	Leu	Gln	Pro	Lys	Gly	Gly	Gln	Asn	Val	Cys	Ala	Gln	Gly	Asp	Cys	260	265	270	
Arg	Ile	Asp	Ile	Lys	Arg	Arg	Asn	Asp	Lys	Leu	Tyr	Ser	Ala	Ser	Val	275	280	285	
Ser	Val	Pro	Leu	Thr	Ala	Ile	Pro	Thr	Arg	Gly	Pro	Lys	Pro	Lys	Met	290	295	300	
Ala	Val	Asn	Leu	Tyr	Ala	Gly	Pro	Gln	Thr	Thr	Ser	Val	Ile	Ala	Asn	305	310	315	320
Ile	Ala	Asp	Asn	Leu	Gln	Leu	Ala	Lys	Asp	Tyr	Gly	Lys	Val	His	Trp	325	330	335	
Phe	Ala	Ser	Pro	Leu	Phe	Trp	Leu	Leu	Asn	Gln	Leu	His	Asn	Ile	Ile	340	345	350	
Gly	Asn	Trp	Gly	Trp	Ala	Ile	Val	Val	Leu	Thr	Ile	Ile	Val	Lys	Ala	355	360	365	
Val	Leu	Tyr	Pro	Leu	Thr	Asn	Ala	Ser	Tyr	Arg	Ser	Met	Ala	Lys	Met	370	375	380	
Arg	Ala	Ala	Ala	Pro	Lys	Leu	Gln	Thr	Ile	Lys	Glu	Lys	Tyr	Gly	Asp	385	390	395	400
Asp	Arg	Met	Ala	Gln	Gln	Gln	Ala	Met	Met	Gln	Leu	Tyr	Lys	Asp	Glu	405	410	415	
Lys	Ile	Asn	Pro	Leu	Gly	Gly	Cys	Leu	Pro	Met	Leu	Leu	Gln	Ile	Pro	420	425	430	
Val	Phe	Ile	Gly	Leu	Tyr	Trp	Ala	Leu	Phe	Ala	Ser	Val	Glu	Leu	Arg	435	440	445	
Gln	Ala	Pro	Trp	Leu	Gly	Trp	Ile	Thr	Asp	Leu	Ser	Arg	Ala	Asp	Pro	450	455	460	
Tyr	Tyr	Ile	Leu	Pro	Ile	Ile	Met	Ala	Ala	Thr	Met	Phe	Ala	Gln	Thr	465	470	475	480

Tyr Leu Asn Pro Pro Pro Thr Asp Pro Met Gln Ala Lys Met Met Lys
485 490 495

Ile Met Pro Leu Val Phe Ser Val Met Phe Phe Phe Phe Pro Ala Gly
500 505 510

Leu Val Leu Tyr Trp Val Val Asn Asn Leu Leu Thr Ile Ala Gln Gln
515 520 525

Trp His Ile Asn Arg Ser Ile Glu Lys Gln Arg Ala Gln Gly Glu Val
530 535 540

Val Ser
545

<210> 59
<211> 379
<212> DNA
<213> Neisseria meningitidis

<220>
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<222> (51)..(51)
<223> N= Unknown

<220>
<221> misc_feature
<222> (122)..(122)
<223> N= Unknown

<220>
<221> misc_feature
<222> (149)..(149)
<223> N= Unknown

<220>
<221> misc_feature
<222> (237)..(237)
<223> N= Unknown

<400> 59
gccgtcttaa tcatcgaatt attgacggga acgggtttatc ttttggttgt nagecgggct 60
ttggcggggt cgggcattgc ttacgggctg accggcagta cgcctgccgc cgtcttgacc 120
gncgctctgc tttccgcgct gggatattng ttcgtacacg ccaaaaccgc cgtagaaaa 180
gttgaaacgg attcatatca ggatttggat gccggacaat atgtcgaaat cctccgncac 240
acaggcggca accgttacga agtttttattc gcggtacgac tggcaggctc aaaatacggg 300
gcaagaagag cttgaaccag gaactcgcgc cctcattgtc cgcaaggaag gcaaccttct 360
tattatcaca cacccttaa 379

<210> 60
<211> 126
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (41)..(41)
<223> Xaa= any amino acid

<220>
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<222> (50)..(50)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (89)..(89)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (94)..(94)
<223> Xaa= any amino acid

<400> 60
Ala Val Leu Ile Ile Glu Leu Leu Thr Gly Thr Val Tyr Leu Leu Val
1 5 10 15
Val Ser Ala Ala Leu Ala Gly Ser Gly Ile Ala Tyr Gly Leu Thr Gly
20 25 30
Ser Thr Pro Ala Ala Val Leu Thr Xaa Ala Leu Leu Ser Ala Leu Gly
35 40 45
Ile Xaa Phe Val His Ala Lys Thr Ala Val Arg Lys Val Glu Thr Asp
50 55 60
Ser Tyr Gln Asp Leu Asp Ala Gly Gln Tyr Val Glu Ile Leu Arg His
65 70 75 80
Thr Gly Gly Asn Arg Tyr Glu Val Xaa Tyr Arg Gly Thr Xaa Trp Gln
85 90 95
Ala Gln Asn Thr Gly Gln Glu Glu Leu Glu Pro Gly Thr Arg Ala Leu
100 105 110
Ile Val Arg Lys Glu Gly Asn Leu Leu Ile Ile Thr His Pro
115 120 125

<210> 61
<211> 381
<212> DNA
<213> Neisseria meningitidis

<220>
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<222> (51)..(51)
<223> N= Unknown

<220>
<221> misc_feature
<222> (122)..(122)

<223> N= Unknown

<220>

<221> misc_feature

<222> (149)..(149)

<223> N= Unknown

<400> 61

gccgtcttaa	tcacgaatt	attgacggga	acggtttata	ttttggttgt	nagcgcggt	60
ttggcgggtt	cgggcattgc	ttacgggctg	accggcagta	cgcttgccgc	cgtcttgacc	120
gncgctctgc	tttccgcgct	gggtatttng	ttcgtacacg	ccaaaaccgc	cgttagaaaa	180
gttgaaacgg	attcatatca	ggatttggat	gccggacaat	atgtcgaaat	cctccgacac	240
acaggcggca	accgttacga	agttttttat	cgcggtacgc	actggcaggc	tcaaaatacg	300
gggcaagaag	agcttgaacc	aggaactcgc	gccctcattg	tccgcaagga	aggcaacctt	360
cttattatca	cacaccctta	a				381

<210> 62

<211> 126

<212> PRT

<213> Neisseria meningitidis

<220>

<221> misc_feature

<222> (41)..(41)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (50)..(50)

<223> Xaa= any amino acid

<400> 62

Ala	Val	Leu	Ile	Ile	Glu	Leu	Leu	Thr	Gly	Thr	Val	Tyr	Leu	Leu	Val
1			5					10					15		
Val	Ser	Ala	Ala	Leu	Ala	Gly	Ser	Gly	Ile	Ala	Tyr	Gly	Leu	Thr	Gly
		20					25					30			
Ser	Thr	Pro	Ala	Ala	Val	Leu	Thr	Xaa	Ala	Leu	Leu	Ser	Ala	Leu	Gly
		35					40					45			
Ile	Xaa	Phe	Val	His	Ala	Lys	Thr	Ala	Val	Arg	Lys	Val	Glu	Thr	Asp
	50					55				60					
Ser	Tyr	Gln	Asp	Leu	Asp	Ala	Gly	Gln	Tyr	Val	Glu	Ile	Leu	Arg	His
65				70					75					80	
Thr	Gly	Gly	Asn	Arg	Tyr	Glu	Val	Phe	Tyr	Arg	Gly	Thr	His	Trp	Gln
			85						90					95	
Ala	Gln	Asn	Thr	Gly	Gln	Glu	Glu	Leu	Glu	Pro	Gly	Thr	Arg	Ala	Leu
		100						105					110		
Ile	Val	Arg	Lys	Glu	Gly	Asn	Leu	Leu	Ile	Ile	Thr	His	Pro		
		115					120					125			

<210> 63
 <211> 408
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 63
 atgactgtat gggtttgttgc cgctgttgcc gtcttaatca tcgaattatt gacgggaacg 60
 gtttatcttt tggttgtcag cgcggctttg gcgggttcgg gcattgctta cgggctgacc 120
 ggcagcacgc ctgccgccgt cttgaccgcc gctctgcttt ccgcgctggg tatttggttc 180
 gtacacgcca aaaccgccgt gggaaaagt gaaacggatt catatcagga ttggatgcc 240
 gggcaatatg ccgaaatcct ccggcacgca ggcggcaacc gttacgaagt ttttatcgc 300
 ggtacgcact ggcaggctca aaatacgggg caagaagagc ttgaaccagg aacgcgcgcc 360
 ctaatcgtcc gcaaggaagg caaccttctt atcatcgcaa aaccttaa 408

<210> 64
 <211> 135
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 64
 Met Thr Val Trp Phe Val Ala Ala Val Ala Val Leu Ile Ile Glu Leu
 1 5 10 15
 Leu Thr Gly Thr Val Tyr Leu Leu Val Val Ser Ala Ala Leu Ala Gly
 20 25 30
 Ser Gly Ile Ala Tyr Gly Leu Thr Gly Ser Thr Pro Ala Ala Val Leu
 35 40 45
 Thr Ala Ala Leu Leu Ser Ala Leu Gly Ile Trp Phe Val His Ala Lys
 50 55 60
 Thr Ala Val Gly Lys Val Glu Thr Asp Ser Tyr Gln Asp Leu Asp Ala
 65 70 75 80
 Gly Gln Tyr Ala Glu Ile Leu Arg His Ala Gly Gly Asn Arg Tyr Glu
 85 90 95
 Val Phe Tyr Arg Gly Thr His Trp Gln Ala Gln Asn Thr Gly Gln Glu
 100 105 110
 Glu Leu Glu Pro Gly Thr Arg Ala Leu Ile Val Arg Lys Glu Gly Asn
 115 120 125
 Leu Leu Ile Ile Ala Lys Pro
 130 135

<210> 65
 <211> 408
 <212> DNA
 <213> *Neisseria gonorrhoeae*

<400> 65
 atgactgtat gggtttgttgc cgctgttgcc gtcttaatca tcgaattatt gacgggaacg 60
 gtttatcttt tggttgtcag cgcggctttg gcgggttcgg gcattgccta cgggctgact 120
 ggcagcacgc ctgccgccgt cttgaccgcc gcactgcttt ccgcgctggg catttggttc 180

gtacatgcc	aaaccgccgt	gggaaaagtt	gaaacggatt	catatcagga	tttggatacc	240
ggaaaatatg	ccgaaatcct	ccgatacaca	ggcggcaacc	gttacgaagt	tttttatcgc	300
ggtacgcact	ggcaggcgca	aaatacgggg	caggaagtgt	ttgaaccggg	aacgcgcgcc	360
ctcatcgctcc	gcaaagaagg	taaccttctt	atcatcgcaa	acccttaa		408

<210> 66
 <211> 135
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 66
 Met Thr Val Trp Phe Val Ala Ala Val Ala Val Leu Ile Ile Glu Leu
 1 5 10 15
 Leu Thr Gly Thr Val Tyr Leu Leu Val Val Ser Ala Ala Leu Ala Gly
 20 25 30
 Ser Gly Ile Ala Tyr Gly Leu Thr Gly Ser Thr Pro Ala Ala Val Leu
 35 40 45
 Thr Ala Ala Leu Leu Ser Ala Leu Gly Ile Trp Phe Val His Ala Lys
 50 55 60
 Thr Ala Val Gly Lys Val Glu Thr Asp Ser Tyr Gln Asp Leu Asp Thr
 65 70 75 80
 Gly Lys Tyr Ala Glu Ile Leu Arg Tyr Thr Gly Gly Asn Arg Tyr Glu
 85 90 95
 Val Phe Tyr Arg Gly Thr His Trp Gln Ala Gln Asn Thr Gly Gln Glu
 100 105 110
 Val Phe Glu Pro Gly Thr Arg Ala Leu Ile Val Arg Lys Glu Gly Asn
 115 120 125
 Leu Leu Ile Ile Ala Asn Pro
 130 135

<210> 67
 <211> 407
 <212> DNA
 <213> *Neisseria meningitidis*

atgtwtgatt	tccggtttrgg	cgarctgggt	tttgtcggca	ttatcgccct	gatwgtcctc	60
ggccccgaac	gcstgcccga	ggccgcccgc	aycgccggac	ggctcatcgg	caggctgcaa	120
cgctttgtcg	gcagcgtcaa	acaggaattt	gacactcaaa	tcgaactgga	agaactgagg	180
aaggcaaagc	aggaatttga	agctgccgcc	gctcaggttc	gagacagcct	caaagaaacc	240
ggtacggata	tggaaggcaa	tctgcacgac	atttccgacg	gtctgaagcc	ttgggaaaaa	300
ctgcccgaac	agcggacacc	tgccgatttc	ggtgtcgatg	aaaacggcaa	tccgcttccc	360
gatgcggcaa	acaccctatc	agacggcatt	tccgacgtta	tgccgctc		407

<210> 68
 <211> 136
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
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 <222> (2)..(2)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (25)..(25)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (31)..(31)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (119)..(119)
 <223> Xaa= any amino acid

<400> 68
 Met Xaa Asp Phe Gly Leu Gly Glu Leu Val Phe Val Gly Ile Ile Ala
 1 5 10 15
 Leu Ile Val Leu Gly Pro Glu Arg Xaa Pro Glu Ala Ala Arg Xaa Ala
 20 25 30
 Gly Arg Leu Ile Gly Arg Leu Gln Arg Phe Val Gly Ser Val Lys Gln
 35 40 45
 Glu Phe Asp Thr Gln Ile Glu Leu Glu Glu Leu Arg Lys Ala Lys Gln
 50 55 60
 Glu Phe Glu Ala Ala Ala Ala Gln Val Arg Asp Ser Leu Lys Glu Thr
 65 70 75 80
 Gly Thr Asp Met Glu Gly Asn Leu His Asp Ile Ser Asp Gly Leu Lys
 85 90 95
 Pro Trp Glu Lys Leu Pro Glu Gln Arg Thr Pro Ala Asp Phe Gly Val
 100 105 110
 Asp Glu Asn Gly Asn Pro Xaa Ser Arg Cys Gly Lys His Pro Ile Arg
 115 120 125
 Arg His Phe Arg Arg Tyr Ala Val
 130 135

<210> 69
 <211> 687
 <212> DNA
 <213> Neisseria meningitidis

<400> 69
 atgttttgatt tcggtttggg cgagctgggt tttgtcggca ttatcgccct gattgtcctc 60
 ggccccgaac gcctgccccga ggccgccccgc accgcccggac ggctcatcgg caggctgcaa 120

cgctttgtcg	gcagcgtcaa	acaggaattt	gacactcaaa	tcgaactgga	agaactgagg	180
aaggcaaagc	aggaatttga	agctgccgcc	gctcagggttc	gagacagcct	caaagaaacc	240
ggtacggata	tggaaggcaa	tctgcacgac	atttccgacg	gtctgaagcc	ttgggaaaaa	300
ctgcccgaa	agcggacacc	tgccgatttc	ggtgtcgatg	aaaacggcaa	tccgcttccc	360
gatgcgga	acaccctatc	agacggcatt	tccgacgtta	tgccgtccga	acgttcctac	420
gcttccgccg	aaacccttgg	ggacagcggg	caaaccggca	gtacagccga	acccgcgga	480
accgaccaag	accgcgcgatg	gcgggaatac	ctgactgctt	ctgccgcgcg	acccgtcgta	540
cagaccgtcg	aagtcagcta	tatcgatact	gctgttgaaa	cgctgttcc	gcacaccact	600
tccttgcgca	aacaggcaat	aagccgcaaa	cgcgattttc	gtccgaaaca	ccgcgcaaaa	660
cctaaattgc	gcgtccgtaa	atcataa				687

<210> 70
 <211> 228
 <212> PRT
 <213> Neisseria meningitidis

<400> 70
 Met Phe Asp Phe Gly Leu Gly Glu Leu Val Phe Val Gly Ile Ile Ala
 1 5 10 15
 Leu Ile Val Leu Gly Pro Glu Arg Leu Pro Glu Ala Ala Arg Thr Ala
 20 25 30
 Gly Arg Leu Ile Gly Arg Leu Gln Arg Phe Val Gly Ser Val Lys Gln
 35 40 45
 Glu Phe Asp Thr Gln Ile Glu Leu Glu Glu Leu Arg Lys Ala Lys Gln
 50 55 60
 Glu Phe Glu Ala Ala Ala Ala Gln Val Arg Asp Ser Leu Lys Glu Thr
 65 70 75 80
 Gly Thr Asp Met Glu Gly Asn Leu His Asp Ile Ser Asp Gly Leu Lys
 85 90 95
 Pro Trp Glu Lys Leu Pro Glu Gln Arg Thr Pro Ala Asp Phe Gly Val
 100 105 110
 Asp Glu Asn Gly Asn Pro Leu Pro Asp Ala Ala Asn Thr Leu Ser Asp
 115 120 125
 Gly Ile Ser Asp Val Met Pro Ser Glu Arg Ser Tyr Ala Ser Ala Glu
 130 135 140
 Thr Leu Gly Asp Ser Gly Gln Thr Gly Ser Thr Ala Glu Pro Ala Glu
 145 150 155 160
 Thr Asp Gln Asp Arg Ala Trp Arg Glu Tyr Leu Thr Ala Ser Ala Ala
 165 170 175
 Ala Pro Val Val Gln Thr Val Glu Val Ser Tyr Ile Asp Thr Ala Val
 180 185 190
 Glu Thr Pro Val Pro His Thr Thr Ser Leu Arg Lys Gln Ala Ile Ser
 195 200 205

Arg Lys Arg Asp Phe Arg Pro Lys His Arg Ala Lys Pro Lys Leu Arg
 210 215 220

Val Arg Lys Ser
 225

<210> 71
 <211> 687
 <212> DNA
 <213> Neisseria meningitidis

<400> 71
 atgtttgatt tcggtttggg cgagctgggt tttgtcggca ttatcgccct gattgtcctc 60
 ggccccgaac gcctgcccga ggccgcccgc accgcccggac ggctcatcgg caggctgcaa 120
 cgctttgtcg gcagcgtaaa acaggaattt gacacgcaaa tcgaactgga agaactaagg 180
 aaggcaaaagc aggaatttga agctgccgct gctcagggtt gagacagcct caaagaaacc 240
 ggtacggata tggagggtaa tctgcacgac atttccgacg gtctgaagcc ttgggaaaaa 300
 ctgcccgaac agcgcacgcc tgctgatttc ggtgtcgatg aaaacggcaa tccctttccc 360
 gatgcggcaa acaccctatt agacggcatt tccgacgtta tgccgtccga acgttcctac 420
 gcttcgccc aaacccttgg ggacagcggg caaacccgca gtacagccga acccgcgga 480
 accgaccaag accgtgcatg gcgggaatac ctgactgctt ctgccgccgc acccgctgta 540
 cagaccgtcg aagtcagcta tatcgatacc gctgttgaaa cccctgttcc gcataccact 600
 tcgctgcgta aacaggcaat aagccgcaaa cgcgatttgc gtcttaaate ccgcgcctaaa 660
 cctaaattgc gcgtccgtaa atcataa 687

<210> 72
 <211> 228
 <212> PRT
 <213> Neisseria meningitidis

<400> 72
 Met Phe Asp Phe Gly Leu Gly Glu Leu Val Phe Val Gly Ile Ile Ala
 1 5 10 15
 Leu Ile Val Leu Gly Pro Glu Arg Leu Pro Glu Ala Ala Arg Thr Ala
 20 25 30
 Gly Arg Leu Ile Gly Arg Leu Gln Arg Phe Val Gly Ser Val Lys Gln
 35 40 45
 Glu Phe Asp Thr Gln Ile Glu Leu Glu Glu Leu Arg Lys Ala Lys Gln
 50 55 60
 Glu Phe Glu Ala Ala Ala Ala Gln Val Arg Asp Ser Leu Lys Glu Thr
 65 70 75 80
 Gly Thr Asp Met Glu Gly Asn Leu His Asp Ile Ser Asp Gly Leu Lys
 85 90 95
 Pro Trp Glu Lys Leu Pro Glu Gln Arg Thr Pro Ala Asp Phe Gly Val
 100 105 110
 Asp Glu Asn Gly Asn Pro Phe Pro Asp Ala Ala Asn Thr Leu Leu Asp
 115 120 125
 Gly Ile Ser Asp Val Met Pro Ser Glu Arg Ser Tyr Ala Ser Ala Glu

130

135

140

Thr Leu Gly Asp Ser Gly Gln Thr Gly Ser Thr Ala Glu Pro Ala Glu
145 150 155 160

Thr Asp Gln Asp Arg Ala Trp Arg Glu Tyr Leu Thr Ala Ser Ala Ala
165 170 175

Ala Pro Val Val Gln Thr Val Glu Val Ser Tyr Ile Asp Thr Ala Val
180 185 190

Glu Thr Pro Val Pro His Thr Thr Ser Leu Arg Lys Gln Ala Ile Ser
195 200 205

Arg Lys Arg Asp Leu Arg Pro Lys Ser Arg Ala Lys Pro Lys Leu Arg
210 215 220

Val Arg Lys Ser
225

<210> 73
<211> 8
<212> DNA
<213> Neisseria gonorrhoeae

<220>
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<222> (1)..(8)
<223> N= Unknown

<400> 73
nnnnnnnn

8

<210> 74
<211> 136
<212> PRT
<213> Neisseria gonorrhoeae

<400> 74
Met Phe Asp Phe Gly Leu Gly Glu Leu Ile Phe Val Gly Ile Ile Ala
1 5 10 15

Leu Ile Val Leu Gly Pro Glu Arg Leu Pro Glu Ala Ala Arg Thr Ala
20 25 30

Gly Arg Leu Ile Gly Arg Leu Gln Arg Phe Val Gly Ser Val Lys Gln
35 40 45

Glu Leu Asp Thr Gln Ile Glu Leu Glu Glu Leu Arg Lys Val Lys Gln
50 55 60

Ala Phe Glu Ala Ala Ala Ala Gln Val Arg Asp Ser Leu Lys Glu Thr
65 70 75 80

Asp Thr Asp Met Gln Asn Ser Leu His Asp Ile Ser Asp Gly Leu Lys
85 90 95

Pro Trp Glu Lys Leu Pro Glu Gln Arg Thr Pro Ala Asp Phe Gly Val
100 105 110

Asp Glu Lys Gly Asn Ser Leu Ser Arg Tyr Gly Lys His Arg Ile Arg
115 120 125

Arg His Phe Arg Arg Tyr Ala Val
130 135

<210> 75
<211> 690
<212> DNA
<213> Neisseria gonorrhoeae

<400> 75
atgtttgatt tcggtttggg cgagctgatt tttgtcggca ttatcgccct gattgtcctt 60
ggtccagaac gcctgcccga agccgcccgc actgccggac ggcttatcgg caggctgcaa 120
cgctttgtag gaagcgtcaa acaagaactt gacactcaaa tcgaactgga agagctgagg 180
aaggtcaagc aggcattcga agctgccgcc gctcaggttc gagacagcct caaagaaacc 240
gatacggata tgcagaacag tctgcacgac atttccgacg gtctgaagcc ttgggaaaaa 300
ctgcccgaac agcgcacgcc tgccgatttc ggtgtcgatg aaaacggcaa tccccctccc 360
gatacggcaa acaccgtatc agacggcatt tccgacgtta tgccgtctga acgttccgat 420
acttccgccg aaacccttgg ggacgacagg caaacgggca gtacagccga acctgcccga 480
accgacaaag accgcgcgat gcgggaatac ctgactgctt ctgccgccgc acctgtcgta 540
cagagggccg tcgaagtcag ctatatcgat actgctgttg aaacgcctgt tccgcacacc 600
acttcctgc gcaaacaggc aataaacccg aaacgcgatt tttgtccgaa acaccgcgcc 660
aaaccgaaat tgcgcgtccg taaatcataa 690

<210> 76
<211> 229
<212> PRT
<213> Neisseria gonorrhoeae

<400> 76
Met Phe Asp Phe Gly Leu Gly Glu Leu Ile Phe Val Gly Ile Ile Ala
1 5 10 15
Leu Ile Val Leu Gly Pro Glu Arg Leu Pro Glu Ala Ala Arg Thr Ala
20 25 30
Gly Arg Leu Ile Gly Arg Leu Gln Arg Phe Val Gly Ser Val Lys Gln
35 40 45
Glu Leu Asp Thr Gln Ile Glu Leu Glu Glu Leu Arg Lys Val Lys Gln
50 55 60
Ala Phe Glu Ala Ala Ala Ala Gln Val Arg Asp Ser Leu Lys Glu Thr
65 70 75 80
Asp Thr Asp Met Gln Asn Ser Leu His Asp Ile Ser Asp Gly Leu Lys
85 90 95
Pro Trp Glu Lys Leu Pro Glu Gln Arg Thr Pro Ala Asp Phe Gly Val
100 105 110
Asp Glu Asn Gly Asn Pro Leu Pro Asp Thr Ala Asn Thr Val Ser Asp

115	120	125
Gly Ile Ser Asp Val Met Pro Ser Glu Arg Ser Asp Thr Ser Ala Glu 130 135 140		
Thr Leu Gly Asp Asp Arg Gln Thr Gly Ser Thr Ala Glu Pro Ala Glu 145 150 155 160		
Thr Asp Lys Asp Arg Ala Trp Arg Glu Tyr Leu Thr Ala Ser Ala Ala 165 170 175		
Ala Pro Val Val Gln Arg Ala Val Glu Val Ser Tyr Ile Asp Thr Ala 180 185 190		
Val Glu Thr Pro Val Pro His Thr Thr Ser Leu Arg Lys Gln Ala Ile 195 200 205		
Asn Arg Lys Arg Asp Phe Cys Pro Lys His Arg Ala Lys Pro Lys Leu 210 215 220		
Arg Val Arg Lys Ser 225		

<210> 77
 <211> 639
 <212> DNA
 <213> Neisseria meningitidis

<400> 77						
atgcaagcac	ggctgctgat	acctattcct	ttttcagttt	ttattttatc	cgctgcggga	60
cactgacagg	tattccatcg	catggcggag	ktaaacgctt	tgcggtcgaa	caagaacttg	120
tggccgcttc	tgccagagct	gccgttaaag	acatggattt	acaggcatta	cacggacgaa	180
aagttgcatt	gtacattgcc	actatgggcg	accaagggtc	aggcagtttg	acaggggggt	240
cgctactcca	ttgatgcack	grtwcstggc	gaatacataa	acagccctgc	cgtccgtacc	300
gattacacct	atccacgtta	cgaaaccacc	gctgaaacaa	catcaggcgg	tttgacaggt	360
ttaaccactt	ctttatctac	acttaatgcc	cctgcactct	ctcgcaccca	atcagacggt	420
agcggaagta	aaagcagtct	gggcttaaatt	attggcggga	tgggggatta	tcgaaatgaa	480
accttgacga	ctaaccgcgc	cgacactgcc	tttctttccc	acttggtaca	gaccgtatct	540
ttcctgcgcg	gcatagacgt	tgtttctcct	gccaatgccg	atacagatgt	gtttattaac	600
atcgacgtat	tcggaacgat	acgcaacaga	accgaaatg			639

<210> 78
 <211> 213
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (31)..(31)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (87)..(89)
 <223> Xaa= any amino acid

<400> 78
Met Gln Ala Arg Leu Leu Ile Pro Ile Leu Phe Ser Val Phe Ile Leu
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Ser Ala Cys Gly Thr Leu Thr Gly Ile Pro Ser His Gly Gly Xaa Lys
20 25 30
Arg Phe Ala Val Glu Gln Glu Leu Val Ala Ala Ser Ala Arg Ala Ala
35 40 45
Val Lys Asp Met Asp Leu Gln Ala Leu His Gly Arg Lys Val Ala Leu
50 55 60
Tyr Ile Ala Thr Met Gly Asp Gln Gly Ser Gly Ser Leu Thr Gly Gly
65 70 75 80
Arg Tyr Ser Ile Asp Ala Xaa Xaa Xaa Gly Glu Tyr Ile Asn Ser Pro
85 90 95
Ala Val Arg Thr Asp Tyr Thr Tyr Pro Arg Tyr Glu Thr Thr Ala Glu
100 105 110
Thr Thr Ser Gly Gly Leu Thr Gly Leu Thr Thr Ser Leu Ser Thr Leu
115 120 125
Asn Ala Pro Ala Leu Ser Arg Thr Gln Ser Asp Gly Ser Gly Ser Lys
130 135 140
Ser Ser Leu Gly Leu Asn Ile Gly Gly Met Gly Asp Tyr Arg Asn Glu
145 150 155 160
Thr Leu Thr Thr Asn Pro Arg Asp Thr Ala Phe Leu Ser His Leu Val
165 170 175
Gln Thr Val Phe Phe Leu Arg Gly Ile Asp Val Val Ser Pro Ala Asn
180 185 190
Ala Asp Thr Asp Val Phe Ile Asn Ile Asp Val Phe Gly Thr Ile Arg
195 200 205
Asn Arg Thr Glu Met
210

<210> 79
<211> 963
<212> DNA
<213> Neisseria meningitidis

<400> 79
atgcaagcac ggctgctgat acctattctt ttttcagttt ttattttatc cgctgcggg 60
acactgacag gtattccatc gcatggcgga ggtaaagcgt ttgcggtcga acaagaactt 120
gtggccgctt ctgccagagc tgccgttaaa gacatggatt tacaggcatt acacggacga 180
aaagttgcat tgtacattgc cactatgggc gaccaagggt caggcagttt gacagggggg 240
cgctactcca ttgatgcact gattcgtggc gaatacataa acagccctgc cgtccgtacc 300
gattacacct atccacgtta cgaaaccacc gctgaaacaa catcaggcgg tttgacaggt 360
ttaaccactt ctttatctac acttaatgcc cctgcactct ctcgcaccca atcagacggt 420

agcgggaagta	aaagcagtct	gggcttaa	attggcg	ggga	tgggggatta	tcgaaatgaa	480
accttgacga	ctaaccgcg	cgacactgcc	tttctttccc	acttggtaca	gaccgtattt		540
ttcctgcgcg	gcatagacgt	tgtttctcct	gccaatgccg	atacagatgt	gtttattaac		600
atcgacgtat	tcggaacgat	acgcaacaga	accgaaatgc	acctatacaa	tgccgaaaca		660
ctgaaagccc	aaacaaaact	ggaatatttc	gcagtagaca	gaaccaataa	aaaattgctc		720
atcaaacc	aaaccaatgc	gtttgaagct	gcctataaag	aaaattacgc	attgtggatg		780
gggccgtata	aagtaagcaa	aggaattaaa	ccgacggaag	gattaatgg	cgatttctcc		840
gatatccgac	catacggcaa	tcatacgggt	aactccgccc	catccgtaga	ggctgataac		900
agtcatgagg	ggtatggata	cagcgatgaa	gtagtgcgac	aacatagaca	aggacaacct		960
tga							963

<210> 80
 <211> 320
 <212> PRT
 <213> Neisseria meningitidis

<400> 80
 Met Gln Ala Arg Leu Leu Ile Pro Ile Leu Phe Ser Val Phe Ile Leu
 1 5 10 15
 Ser Ala Cys Gly Thr Leu Thr Gly Ile Pro Ser His Gly Gly Gly Lys
 20 25 30
 Arg Phe Ala Val Glu Gln Glu Leu Val Ala Ala Ser Ala Arg Ala Ala
 35 40 45
 Val Lys Asp Met Asp Leu Gln Ala Leu His Gly Arg Lys Val Ala Leu
 50 55 60
 Tyr Ile Ala Thr Met Gly Asp Gln Gly Ser Gly Ser Leu Thr Gly Gly
 65 70 75 80
 Arg Tyr Ser Ile Asp Ala Leu Ile Arg Gly Glu Tyr Ile Asn Ser Pro
 85 90 95
 Ala Val Arg Thr Asp Tyr Thr Tyr Pro Arg Tyr Glu Thr Thr Ala Glu
 100 105 110
 Thr Thr Ser Gly Gly Leu Thr Gly Leu Thr Thr Ser Leu Ser Thr Leu
 115 120 125
 Asn Ala Pro Ala Leu Ser Arg Thr Gln Ser Asp Gly Ser Gly Ser Lys
 130 135 140
 Ser Ser Leu Gly Leu Asn Ile Gly Gly Met Gly Asp Tyr Arg Asn Glu
 145 150 155 160
 Thr Leu Thr Thr Asn Pro Arg Asp Thr Ala Phe Leu Ser His Leu Val
 165 170 175
 Gln Thr Val Phe Phe Leu Arg Gly Ile Asp Val Val Ser Pro Ala Asn
 180 185 190
 Ala Asp Thr Asp Val Phe Ile Asn Ile Asp Val Phe Gly Thr Ile Arg
 195 200 205

Asn Arg Thr Glu Met His Leu Tyr Asn Ala Glu Thr Leu Lys Ala Gln
 210 215 220
 Thr Lys Leu Glu Tyr Phe Ala Val Asp Arg Thr Asn Lys Lys Leu Leu
 225 230 235 240
 Ile Lys Pro Lys Thr Asn Ala Phe Glu Ala Ala Tyr Lys Glu Asn Tyr
 245 250 255
 Ala Leu Trp Met Gly Pro Tyr Lys Val Ser Lys Gly Ile Lys Pro Thr
 260 265 270
 Glu Gly Leu Met Val Asp Phe Ser Asp Ile Arg Pro Tyr Gly Asn His
 275 280 285
 Thr Gly Asn Ser Ala Pro Ser Val Glu Ala Asp Asn Ser His Glu Gly
 290 295 300
 Tyr Gly Tyr Ser Asp Glu Val Val Arg Gln His Arg Gln Gly Gln Pro
 305 310 315 320

<210> 81
 <211> 963
 <212> DNA
 <213> Neisseria meningitidis

<400> 81
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 aactgacag gtattccatc gcatggcgga ggtaaagcgt ttgcgggtcga acaagaactt 120
 gtggccgctt ctgccagagc tgccgttaaa gacatggatt tacaggcatt acacggacga 180
 aaagttgcat tgtacattgc aactatgggc gaccaagggt caggcagttt gacaggggggt 240
 cgctactcca ttgatgcact gattcgtggc gaatacataa acagccctgc cgtccgtacc 300
 gattacacct atccacgtta cgaaaccacc gctgaaacaa catcaggcgg tttgacaggt 360
 ttaaccactt ctttatctac acttaatgcc cctgcactct cgcgcaccca atcagacggg 420
 agcggaaagta aaagcagtct gggcttaaat attggcgga tgggggatta tcgaaatgaa 480
 accttgacga ctaaccgcg cgacactgcc tttctttccc acttggtaca gaccgtattt 540
 ttcctgcgcg gcatagacgt tgtttctcct gccaatgccg atacggatgt gtttattaac 600
 atcgacgtat tcggaacgat acgcaacaga accgaaatgc acctatacaa tgccgaaaca 660
 ctgaaagccc aaacaaaact ggaatatttc gcagtagaca gaaccaataa aaaattgctc 720
 atcaaaccaa aaaccaatgc gtttgaagct gcctataaag aaaattacgc attgtggatg 780
 ggaccgtata aagtaagcaa aggaattaaa ccgacagaag gattaatggt cgatttctcc 840
 gatattccaac catacggcaa tcatatgggt aactctgccc catccgtaga ggctgataac 900
 agtcatgagg ggtatggata cagcgatgaa gcagtgcgac gacatagaca agggcaacct 960
 tga 963

<210> 82
 <211> 320
 <212> PRT
 <213> Neisseria meningitidis

<400> 82
 Met Gln Ala Arg Leu Leu Ile Pro Ile Leu Phe Ser Val Phe Ile Leu
 1 5 10 15
 Ser Ala Cys Gly Thr Leu Thr Gly Ile Pro Ser His Gly Gly Gly Lys
 20 25 30

Arg Phe Ala Val Glu Gln Glu Leu Val Ala Ala Ser Ala Arg Ala Ala
 35 40 45
 Val Lys Asp Met Asp Leu Gln Ala Leu His Gly Arg Lys Val Ala Leu
 50 55 60
 Tyr Ile Ala Thr Met Gly Asp Gln Gly Ser Gly Ser Leu Thr Gly Gly
 65 70 75 80
 Arg Tyr Ser Ile Asp Ala Leu Ile Arg Gly Glu Tyr Ile Asn Ser Pro
 85 90 95
 Ala Val Arg Thr Asp Tyr Thr Tyr Pro Arg Tyr Glu Thr Thr Ala Glu
 100 105 110
 Thr Thr Ser Gly Gly Leu Thr Gly Leu Thr Thr Ser Leu Ser Thr Leu
 115 120 125
 Asn Ala Pro Ala Leu Ser Arg Thr Gln Ser Asp Gly Ser Gly Ser Lys
 130 135 140
 Ser Ser Leu Gly Leu Asn Ile Gly Gly Met Gly Asp Tyr Arg Asn Glu
 145 150 155 160
 Thr Leu Thr Thr Asn Pro Arg Asp Thr Ala Phe Leu Ser His Leu Val
 165 170 175
 Gln Thr Val Phe Phe Leu Arg Gly Ile Asp Val Val Ser Pro Ala Asn
 180 185 190
 Ala Asp Thr Asp Val Phe Ile Asn Ile Asp Val Phe Gly Thr Ile Arg
 195 200 205
 Asn Arg Thr Glu Met His Leu Tyr Asn Ala Glu Thr Leu Lys Ala Gln
 210 215 220
 Thr Lys Leu Glu Tyr Phe Ala Val Asp Arg Thr Asn Lys Lys Leu Leu
 225 230 235 240
 Ile Lys Pro Lys Thr Asn Ala Phe Glu Ala Ala Tyr Lys Glu Asn Tyr
 245 250 255
 Ala Leu Trp Met Gly Pro Tyr Lys Val Ser Lys Gly Ile Lys Pro Thr
 260 265 270
 Glu Gly Leu Met Val Asp Phe Ser Asp Ile Gln Pro Tyr Gly Asn His
 275 280 285
 Met Gly Asn Ser Ala Pro Ser Val Glu Ala Asp Asn Ser His Glu Gly
 290 295 300
 Tyr Gly Tyr Ser Asp Glu Ala Val Arg Arg His Arg Gln Gly Gln Pro
 305 310 315 320

<210> 83
 <211> 963

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 83

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atgcggggcac ggctgctgat acctattctt ttttcagttt ttattttatc cgctgcggg 60
acactgacag gtattccatc gcatggcgga ggcaaacgct tcgcggtcga acaagaactt 120
gtggccgctt ctgccagagc tgccgttaaa gacatggatt tacaggcatt acacggacga 180
aaagttgcat tgtacattgc aactatgggc gaccaaggtt caggcagttt gacagggggg 240
cgctactcca ttgatgcact gattcgcggc gaatacataa acagccctgc cgtccgcacc 300
gattacacct atccgcgtta cgaaaccacc gctgaaacaa catcaggcgg tttgacgggt 360
ttaaccactt ctttatctac acttaatgcc cctgcactct cgcgcacca atcagacgg 420
agcgggaagta ggagcagtct gggcttaaat attggcgga tgggggatta tcgaaatgaa 480
accttgacga ccaaccgcg cgacactgcc tttctttccc acttggtgca gaccgtattt 540
ttcctgcgcg gcatagacgt tgtttctcct gccaatgccg atacagatgt gtttattaac 600
atcgacgat tcggaacgat acgcaacaga accgaaatgc acctatacaa tgccgaaaca 660
ctgaaagccc aaacaaaact ggaatatttc gcagtagaca gaaccaataa aaaattgctc 720
atcaaaccga aaaccaatgc gtttgaagct gcctataaag aaaattacgc attgtggatg 780
gggcccgtata aagtaagcaa aggaatcaaa ccgacggaag gattgatggt cgatttctcc 840
gatatccaac catacggcaa tcatacgggt aactccgccc catccgtaga ggctgataac 900
agtcgatgagg ggtatggata cagcgaatgaa gcagtgcgac aacatagaca agggcaacct 960
tga
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<210> 84

<211> 320

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 84

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Met Arg Ala Arg Leu Leu Ile Pro Ile Leu Phe Ser Val Phe Ile Leu
1          5          10          15

Ser Ala Cys Gly Thr Leu Thr Gly Ile Pro Ser His Gly Gly Gly Lys
20          25          30

Arg Phe Ala Val Glu Gln Glu Leu Val Ala Ala Ser Ala Arg Ala Ala
35          40          45

Val Lys Asp Met Asp Leu Gln Ala Leu His Gly Arg Lys Val Ala Leu
50          55          60

Tyr Ile Ala Thr Met Gly Asp Gln Gly Ser Gly Ser Leu Thr Gly Gly
65          70          75          80

Arg Tyr Ser Ile Asp Ala Leu Ile Arg Gly Glu Tyr Ile Asn Ser Pro
85          90          95

Ala Val Arg Thr Asp Tyr Thr Tyr Pro Arg Tyr Glu Thr Thr Ala Glu
100         105         110

Thr Thr Ser Gly Gly Leu Thr Gly Leu Thr Thr Ser Leu Ser Thr Leu
115         120         125

Asn Ala Pro Ala Leu Ser Arg Thr Gln Ser Asp Gly Ser Gly Ser Arg
130         135         140

Ser Ser Leu Gly Leu Asn Ile Gly Gly Met Gly Asp Tyr Arg Asn Glu
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145		150		155		160
Thr Leu Thr Thr Asn Pro Arg Asp Thr Ala Phe Leu Ser His Leu Val						
	165			170		175
Gln Thr Val Phe Phe Leu Arg Gly Ile Asp Val Val Ser Pro Ala Asn						
	180			185		190
Ala Asp Thr Asp Val Phe Ile Asn Ile Asp Val Phe Gly Thr Ile Arg						
	195		200		205	
Asn Arg Thr Glu Met His Leu Tyr Asn Ala Glu Thr Leu Lys Ala Gln						
	210		215		220	
Thr Lys Leu Glu Tyr Phe Ala Val Asp Arg Thr Asn Lys Lys Leu Leu						
225		230		235		240
Ile Lys Pro Lys Thr Asn Ala Phe Glu Ala Ala Tyr Lys Glu Asn Tyr						
	245		250			255
Ala Leu Trp Met Gly Pro Tyr Lys Val Ser Lys Gly Ile Lys Pro Thr						
	260		265			270
Glu Gly Leu Met Val Asp Phe Ser Asp Ile Gln Pro Tyr Gly Asn His						
	275		280			285
Thr Gly Asn Ser Ala Pro Ser Val Glu Ala Asp Asn Ser His Glu Gly						
	290		295		300	
Tyr Gly Tyr Ser Asp Glu Ala Val Arg Gln His Arg Gln Gly Gln Pro						
305		310		315		320

<210> 85
 <211> 590
 <212> DNA
 <213> Neisseria meningitidis

<400> 85	
ggcagcacaa aaaacaggcg gttgaacgga aaaaccgtat ttacgatgat gccgggtatg	60
atattcggcg tattcacggg cgcattctcc gcaaaatata tccccgcgtt cgggcttcaa	120
atattcttca tctgtttttt aaccgccgtc gcattcaaaa cactgcatac cgaccctcag	180
acggcatccc gcccgctgcc cggactgccc rgactgactg cggtttccac actgttcggc	240
acaatgtcga gctgggtcgg cataggcggc ggttcacttt ccgccccctt cttaatccac	300
tgcggcttcc ccgcccataa agccatcggc acatcatccg gccttgcctg gccgattgca	360
ctctccggcg caatatcgta tctgctcaac ggccctgaata ttgcaggatt gccgaaggg	420
tcaactgggt tcttttacct gcccgccgtc gccgtcctca gcgcggcaac cattgccttt	480
gccccgctcg gtgtcaaaac cgcccacaaa ctttcttctg ccaaactcaa aaaatcttcg	540
gcattatggt gcttttgatt gccggaaaaa tgctgtacaa cctgctttaa	590

<210> 86
 <211> 196
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature

<222> (71)..(71)

<223> Xaa= any amino acid

<400> 86

Gly Gln His Lys Lys Gln Ala Val Asn Gly Lys Thr Val Phe Thr Met
1 5 10 15

Met Pro Gly Met Ile Phe Gly Val Phe Thr Gly Ala Phe Ser Ala Lys
20 25 30

Tyr Ile Pro Ala Phe Gly Leu Gln Ile Phe Phe Ile Leu Phe Leu Thr
35 40 45

Ala Val Ala Phe Lys Thr Leu His Thr Asp Pro Gln Thr Ala Ser Arg
50 55 60

Pro Leu Pro Gly Leu Pro Xaa Leu Thr Ala Val Ser Thr Leu Phe Gly
65 70 75 80

Thr Met Ser Ser Trp Val Gly Ile Gly Gly Gly Ser Leu Ser Val Pro
85 90 95

Phe Leu Ile His Cys Gly Phe Pro Ala His Lys Ala Ile Gly Thr Ser
100 105 110

Ser Gly Leu Ala Trp Pro Ile Ala Leu Ser Gly Ala Ile Ser Tyr Leu
115 120 125

Leu Asn Gly Leu Asn Ile Ala Gly Leu Pro Glu Gly Ser Leu Gly Phe
130 135 140

Leu Tyr Leu Pro Ala Val Ala Val Leu Ser Ala Ala Thr Ile Ala Phe
145 150 155 160

Ala Pro Leu Gly Val Lys Thr Ala His Lys Leu Ser Ser Ala Lys Leu
165 170 175

Lys Lys Ser Phe Gly Ile Met Leu Leu Leu Ile Ala Gly Lys Met Leu
180 185 190

Tyr Asn Leu Leu
195

<210> 87

<211> 806

<212> DNA

<213> Neisseria meningitidis

<400> 87

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gccggcctgt	tcggcgtagg	cggcggcacg	ctgattgtcc	ctgtcgtttt	atgggtgctt	120
gatttgcagg	gtttggcaca	acatccttac	gcgcaacacc	tcgccgtcgg	cacatccttc	180
gccgtcatgg	tcttcaccgc	cttttcaggt	atgctggggc	agcacaaaaa	acaggcggtc	240
gactggaaaa	ccgtatttac	gatgatgccg	ggtatgatat	tcggcggtatt	cacgggcgca	300
ctctccgcaa	aatatatccc	cgcgttcggg	cttcaaattt	tcttcatcct	gtttttaacc	360
gccgtcgcgt	tcaaaacact	gcataccgac	cctcagacgg	catccccgcc	gctgcccggg	420

ctgcccggac	tgactgcggt	ttccacactg	ttcggcacaa	tgtcgagctg	ggtcggcata	480
ggcggcggtt	cactttccgt	cccccttta	atccactgcg	gcttccccgc	ccataaagcc	540
atcggcacat	catccggcct	tgccctggccg	attgcactct	ccggcgcaat	atcgtatctg	600
ctcaacggcc	tgaatattgc	aggattgccc	gaagggtcac	tgggcttcct	ttacctgccc	660
gccgtcgccg	tcctcagcgc	ggcaaccatt	gcctttgccc	cgctcggtgt	caaaaccgcc	720
cacaaacttt	cttctgccaa	actcaaaaaa	tcttcggcat	tatgttgctt	ttgattgccg	780
gaaaaatgct	gtacaacctg	ctttaa				806

<210> 88
 <211> 268
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (251)..(251)
 <223> Xaa= any amino acid

<400> 88
 Met Trp His Trp Asp Ile Ile Leu Ile Leu Leu Ala Val Gly Ser Ala
 1 5 10 15
 Ala Gly Phe Ile Ala Gly Leu Phe Gly Val Gly Gly Gly Thr Leu Ile
 20 25 30
 Val Pro Val Val Leu Trp Val Leu Asp Leu Gln Gly Leu Ala Gln His
 35 40 45
 Pro Tyr Ala Gln His Leu Ala Val Gly Thr Ser Phe Ala Val Met Val
 50 55 60
 Phe Thr Ala Phe Ser Ser Met Leu Gly Gln His Lys Lys Gln Ala Val
 65 70 75 80
 Asp Trp Lys Thr Val Phe Thr Met Met Pro Gly Met Ile Phe Gly Val
 85 90 95
 Phe Thr Gly Ala Leu Ser Ala Lys Tyr Ile Pro Ala Phe Gly Leu Gln
 100 105 110
 Ile Phe Phe Ile Leu Phe Leu Thr Ala Val Ala Phe Lys Thr Leu His
 115 120 125
 Thr Asp Pro Gln Thr Ala Ser Arg Pro Leu Pro Gly Leu Pro Gly Leu
 130 135 140
 Thr Ala Val Ser Thr Leu Phe Gly Thr Met Ser Ser Trp Val Gly Ile
 145 150 155 160
 Gly Gly Gly Ser Leu Ser Val Pro Phe Leu Ile His Cys Gly Phe Pro
 165 170 175
 Ala His Lys Ala Ile Gly Thr Ser Ser Gly Leu Ala Trp Pro Ile Ala
 180 185 190
 Leu Ser Gly Ala Ile Ser Tyr Leu Leu Asn Gly Leu Asn Ile Ala Gly

195

200

205

Leu Pro Glu Gly Ser Leu Gly Phe Leu Tyr Leu Pro Ala Val Ala Val
210 215 220

Leu Ser Ala Ala Thr Ile Ala Phe Ala Pro Leu Gly Val Lys Thr Ala
225 230 235 240

His Lys Leu Ser Ser Ala Lys Leu Lys Lys Xaa Phe Gly Ile Met Leu
245 250 255

Leu Leu Ile Ala Gly Lys Met Leu Tyr Asn Leu Leu
260 265

<210> 89

<211> 807

<212> DNA

<213> Neisseria meningitidis

<400> 89

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gccggcctgt	tcggcgtagg	cggcggcacg	ctgattgtcc	ctgtcgtttt	atgggtgctt	120
gatttgcagg	gtttggcaca	acatccttac	gcgcaacacc	tcggcgtcgg	cacatccttc	180
gccgtcatgg	tcttcaccgc	cttttccagt	atgctggggc	agcacaaaaa	acaggcggtc	240
gactggaaaa	ccgtattttac	gatgatgccg	ggatggtat	tcggcggtatt	cgctggcgca	300
ctctccgcaa	aatatatccc	agcggtcggg	cttcaaattt	tcttcatacct	gtttttaacc	360
gccgtcgcac	tcaaaacact	gcataccgac	cctcagacgg	catcccgccc	gctgcccgga	420
ctgcccggac	tgactgcggt	ttccacactg	ttcggcacaa	tgtcgagctg	ggtcggcata	480
ggcggcggtt	cactttccgt	ccccttctta	atccactgcg	gcttccccgc	ccataaagcc	540
atcggcacat	catccggcct	tgctggcgcg	attgcactct	cggcgcaat	atcgatatctg	600
ctcaacggcc	tgaatattgc	aggattgccc	gaagggtcac	tgggcttctt	ttacctgccc	660
gccgtcgccg	tcctcagcgc	ggcaaccatt	gcctttgccc	cgctcggtgt	caaaaccgcc	720
cacaaacttt	cttctgccaa	actcaaaaaa	tccttcggca	ttatgttgct	tttgattgcc	780
ggaaaaatgc	tgtacaacct	gctttaa				807

<210> 90

<211> 268

<212> PRT

<213> Neisseria meningitidis

<400> 90

Met Trp His Trp Asp Ile Ile Leu Ile Leu Leu Ala Val Gly Ser Ala
1 5 10 15

Ala Gly Phe Ile Ala Gly Leu Phe Gly Val Gly Gly Gly Thr Leu Ile
20 25 30

Val Pro Val Val Leu Trp Val Leu Asp Leu Gln Gly Leu Ala Gln His
35 40 45

Pro Tyr Ala Gln His Leu Ala Val Gly Thr Ser Phe Ala Val Met Val
50 55 60

Phe Thr Ala Phe Ser Ser Met Leu Gly Gln His Lys Lys Gln Ala Val
65 70 75 80

Asp	Trp	Lys	Thr	Val	Phe	Thr	Met	Met	Pro	Gly	Met	Val	Phe	Gly	Val			
				85					90					95				
Phe	Ala	Gly	Ala	Leu	Ser	Ala	Lys	Tyr	Ile	Pro	Ala	Phe	Gly	Leu	Gln			
			100					105					110					
Ile	Phe	Phe	Ile	Leu	Phe	Leu	Thr	Ala	Val	Ala	Phe	Lys	Thr	Leu	His			
			115				120					125						
Thr	Asp	Pro	Gln	Thr	Ala	Ser	Arg	Pro	Leu	Pro	Gly	Leu	Pro	Gly	Leu			
			130			135					140							
Thr	Ala	Val	Ser	Thr	Leu	Phe	Gly	Thr	Met	Ser	Ser	Trp	Val	Gly	Ile			
145					150				155						160			
Gly	Gly	Gly	Ser	Leu	Ser	Val	Pro	Phe	Leu	Ile	His	Cys	Gly	Phe	Pro			
			165				170						175					
Ala	His	Lys	Ala	Ile	Gly	Thr	Ser	Ser	Gly	Leu	Ala	Trp	Pro	Ile	Ala			
			180				185						190					
Leu	Ser	Gly	Ala	Ile	Ser	Tyr	Leu	Leu	Asn	Gly	Leu	Asn	Ile	Ala	Gly			
		195				200						205						
Leu	Pro	Glu	Gly	Ser	Leu	Gly	Phe	Leu	Tyr	Leu	Pro	Ala	Val	Ala	Val			
	210					215					220							
Leu	Ser	Ala	Ala	Thr	Ile	Ala	Phe	Ala	Pro	Leu	Gly	Val	Lys	Thr	Ala			
225					230				235						240			
His	Lys	Leu	Ser	Ser	Ala	Lys	Leu	Lys	Lys	Ser	Phe	Gly	Ile	Met	Leu			
			245				250						255					
Leu	Leu	Ile	Ala	Gly	Lys	Met	Leu	Tyr	Asn	Leu	Leu							
		260				265												

<210> 91
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 91
 nnnnnnnn

<210> 92
 <211> 268
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 92
 Met Trp His Trp Asp Ile Ile Leu Ile Leu Leu Ala Val Gly Ser Ala

1	5	10	15
Ala Gly Phe	Ile Ala Gly Leu Phe	Gly Val Gly Gly Gly	Thr Leu Ile
20		25	30
Val Pro Val	Val Leu Trp Val	Leu Asp Leu Gln Gly	Leu Ala Gln His
35		40	45
Pro Tyr Ala	Gln His Leu Ala Val	Gly Thr Ser Phe	Ala Val Met Val
50		55	60
Phe Thr Ala	Phe Ser Ser Met Leu	Gly Gln His Lys Lys	Gln Ala Val
65		70	75
Asp Trp Lys	Thr Ile Phe Ala Met	Met Pro Gly Met Ile	Phe Gly Val
	85	90	95
Phe Ala Gly	Ala Leu Ser Ala Lys	Tyr Ile Pro Ala Phe	Gly Leu Gln
	100	105	110
Ile Phe Phe	Ile Leu Phe Leu Thr	Ala Val Ala Phe Lys	Thr Leu His
	115	120	125
Thr Gly Arg	Gln Thr Ala Ser Arg	Pro Leu Pro Gly Leu	Pro Gly Leu
	130	135	140
Thr Ala Val	Ser Thr Leu Phe Gly	Ala Met Ser Ser Trp	Val Gly Ile
	145	150	155
Gly Gly Gly	Ser Leu Ser Val Pro	Phe Leu Ile His Cys	Gly Phe Pro
	165	170	175
Ala His Lys	Ala Ile Gly Thr Ser	Ser Gly Leu Ala Trp	Pro Ile Ala
	180	185	190
Leu Ser Gly	Ala Ile Ser Tyr Leu	Val Asn Gly Leu Asn	Ile Ala Gly
	195	200	205
Leu Pro Glu	Gly Ser Leu Gly Phe	Leu Tyr Leu Pro Ala	Val Ala Val
	210	215	220
Leu Ser Ala	Ala Thr Ile Ala Phe	Ala Pro Leu Gly Val	Lys Thr Ala
	225	230	235
His Lys Leu	Ser Ser Ala Lys Leu	Lys Glu Ser Phe Gly	Ile Met Leu
	245	250	255
Leu Leu Ile	Ala Gly Lys Met Leu	Tyr Asn Leu Leu	
	260	265	

<210> 93
 <211> 807
 <212> DNA
 <213> *Neisseria gonorrhoeae*
 <400> 93

atgtggcatt	gggacattat	cttaatcctg	cttgccgtag	gcagtgcggc	aggttttatt	60
gccggcctgt	tcgggtgtagg	cggcggtacg	ctgattgtcc	ctgtcgtttt	atgggtgctt	120
gatttgcagg	gtttggcaca	acatccttac	gcgcaacacc	tcgccgtcgg	cacatccttc	180
gccgtcatgg	tcttcaccgc	cttttccagt	atgttggggc	agcacaaaaa	acaggcggtc	240
gactggaaaa	ccatatttgc	gatgatgccg	ggtatgatat	tcggcgtatt	cgctggcgca	300
ctctccgcaa	aatatatccc	cgcgttcggg	cttcaaattt	tcttcatcct	gtttttaacc	360
gccgtcgcat	tcaaaacact	gcataccggg	cgtcagacgg	catcccggcc	gctgcccggg	420
ctgcccggac	tgactgcggg	ttccacactg	ttcggcgcaa	tgtcgagctg	ggtcggcata	480
ggcggcggtt	cactttccgt	cccctttctta	atccactgcy	gcttccccgc	ccataaagcc	540
atcggcacat	catccggcct	tgcttgccg	attgcactct	ccggcgcaat	atcgtatctg	600
gtcaacggtc	tgaatattgc	aggattgccc	gaagggtcgc	tgggcttcct	ttacctgccc	660
gccgtcgccg	tcctcagcgc	ggcaaccatt	gcctttgccc	cgctcggtgt	caaaaccgcc	720
cacaaacttt	cttctgccaa	actcaaagaa	tccttcggca	ttatgttgct	tttgattgcc	780
ggaaaaatgc	tgtacaacct	gctttaa				807

<210> 94

<211> 268

<212> PRT

<213> Neisseria gonorrhoeae

<400> 94

Met	Trp	His	Trp	Asp	Ile	Ile	Leu	Ile	Leu	Leu	Ala	Val	Gly	Ser	Ala
1				5					10					15	

Ala	Gly	Phe	Ile	Ala	Gly	Leu	Phe	Gly	Val	Gly	Gly	Gly	Thr	Leu	Ile
			20					25					30		

Val	Pro	Val	Val	Leu	Trp	Val	Leu	Asp	Leu	Gln	Gly	Leu	Ala	Gln	His
		35					40					45			

Pro	Tyr	Ala	Gln	His	Leu	Ala	Val	Gly	Thr	Ser	Phe	Ala	Val	Met	Val
	50					55					60				

Phe	Thr	Ala	Phe	Ser	Ser	Met	Leu	Gly	Gln	His	Lys	Lys	Gln	Ala	Val
65					70					75				80	

Asp	Trp	Lys	Thr	Ile	Phe	Ala	Met	Met	Pro	Gly	Met	Ile	Phe	Gly	Val
			85						90					95	

Phe	Ala	Gly	Ala	Leu	Ser	Ala	Lys	Tyr	Ile	Pro	Ala	Phe	Gly	Leu	Gln
			100					105					110		

Ile	Phe	Phe	Ile	Leu	Phe	Leu	Thr	Ala	Val	Ala	Phe	Lys	Thr	Leu	His
			115				120					125			

Thr	Gly	Arg	Gln	Thr	Ala	Ser	Arg	Pro	Leu	Pro	Gly	Leu	Pro	Gly	Leu
	130					135					140				

Thr	Ala	Val	Ser	Thr	Leu	Phe	Gly	Ala	Met	Ser	Ser	Trp	Val	Gly	Ile
145					150					155					160

Gly	Gly	Gly	Ser	Leu	Ser	Val	Pro	Phe	Leu	Ile	His	Cys	Gly	Phe	Pro
			165						170					175	

Ala	His	Lys	Ala	Ile	Gly	Thr	Ser	Ser	Gly	Leu	Ala	Trp	Pro	Ile	Ala
			180					185					190		

Leu Ser Gly Ala Ile Ser Tyr Leu Val Asn Gly Leu Asn Ile Ala Gly
195 200 205

Leu Pro Glu Gly Ser Leu Gly Phe Leu Tyr Leu Pro Ala Val Ala Val
210 215 220

Leu Ser Ala Ala Thr Ile Ala Phe Ala Pro Leu Gly Val Lys Thr Ala
225 230 235 240

His Lys Leu Ser Ser Ala Lys Leu Lys Glu Ser Phe Gly Ile Met Leu
245 250 255

Leu Leu Ile Ala Gly Lys Met Leu Tyr Asn Leu Leu
260 265

<210> 95

<211> 351

<212> DNA

<213> Neisseria meningitidis

<400> 95

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acggttcaag	tgtttggtt	tgccggcactg	ctcaaacttt	atgcgctgaa	gccggtttat	180
tggttcgtgt	tgcagtttgt	gctgatggcg	gttgcctatg	tcacccgctg	cggtatagac	240
cggcagccgc	cgtaacggt	cggcggtctg	cagctgcgac	tcggcgggtt	gacggcagcg	300
ttgatgcagg	tctcggtact	ggtgctgctg	ctttcagaaa	ttggaagata	a	351

<210> 96

<211> 116

<212> PRT

<213> Neisseria meningitidis

<400> 96

Gly Asn Gly Trp Gln Ala Asp Pro Glu His Pro Leu Leu Gly Leu Phe
1 5 10 15

Ala Val Ser Asn Val Ser Met Thr Leu Ala Phe Val Gly Ile Cys Ala
20 25 30

Leu Val His Tyr Cys Phe Ser Gly Thr Val Gln Val Phe Val Phe Ala
35 40 45

Ala Leu Leu Lys Leu Tyr Ala Leu Lys Pro Val Tyr Trp Phe Val Leu
50 55 60

Gln Phe Val Leu Met Ala Val Ala Tyr Val His Arg Cys Gly Ile Asp
65 70 75 80

Arg Gln Pro Pro Ser Thr Phe Gly Gly Ser Gln Leu Arg Leu Gly Gly
85 90 95

Leu Thr Ala Ala Leu Met Gln Val Ser Val Leu Val Leu Leu Leu Ser
100 105 110

Glu Ile Gly Arg

<210> 97
 <211> 606
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 97
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 atatcggttt tgggggcaaa gctgatgcc ggcatatggg gaatgaccg cgccgcgccc 180
 ttgttcatcc cccattttta cctgactttg gcgagcatat tttttttcat cgggcattgg 240
 aaccggaaaa cagatggaaa cggatggcag gcagaccccg aacatccgct gtcgggctt 300
 tttgccgtca gtaatgtatc gatgacgctt gcttttgcg gaatatgtgc gttggtgcat 360
 tattgctttt cggaacggt tcaagtgttt gtgtttgcg cactgctcaa actttatgcg 420
 ctgaagccgg tttattggtt cgtgttgag tttgtgctga tggcggttgc ctatgtccac 480
 cgctgcggta tagaccggca gccgccgtca acgttcggcg gctcgcagct gcgactcggc 540
 gggttgacgg cagcgttgat gcaggtctcg gtactggtgc tgctgcttcc agaaattgga 600
 agataa 606

<210> 98
 <211> 201
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 98
 Met Ile Leu Leu His Leu Asp Phe Leu Ser Ala Leu Leu Tyr Ala Ala
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 Val Phe Leu Phe Leu Ile Phe Arg Ala Gly Met Leu Gln Trp Phe Trp
 20 25 30
 Ala Ser Ile Met Leu Trp Leu Gly Ile Ser Val Leu Gly Ala Lys Leu
 35 40 45
 Met Pro Gly Ile Trp Gly Met Thr Arg Ala Ala Pro Leu Phe Ile Pro
 50 55 60
 His Phe Tyr Leu Thr Leu Gly Ser Ile Phe Phe Phe Ile Gly His Trp
 65 70 75 80
 Asn Arg Lys Thr Asp Gly Asn Gly Trp Gln Ala Asp Pro Glu His Pro
 85 90 95
 Leu Leu Gly Leu Phe Ala Val Ser Asn Val Ser Met Thr Leu Ala Phe
 100 105 110
 Val Gly Ile Cys Ala Leu Val His Tyr Cys Phe Ser Gly Thr Val Gln
 115 120 125
 Val Phe Val Phe Ala Ala Leu Leu Lys Leu Tyr Ala Leu Lys Pro Val
 130 135 140
 Tyr Trp Phe Val Leu Gln Phe Val Leu Met Ala Val Ala Tyr Val His
 145 150 155 160

Arg Cys Gly Ile Asp Arg Gln Pro Pro Ser Thr Phe Gly Gly Ser Gln
165 170 175

Leu Arg Leu Gly Gly Leu Thr Ala Ala Leu Met Gln Val Ser Val Leu
180 185 190

Val Leu Leu Leu Ser Glu Ile Gly Arg
195 200

<210> 99
<211> 606
<212> DNA
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (373)..(373)
<223> N= Unknown

<220>
<221> misc_feature
<222> (522)..(522)
<223> N= Unknown

<220>
<221> misc_feature
<222> (565)..(565)
<223> N= Unknown

<400> 99
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ctgatattcc ggcaggaat gttgcaatgg ttttgggcga gtattatgct gtggctgggc 120
atatcggttt tgggggcaaa gctgatgccc ggcataatggg gaatgaccgc cgccgcgccc 180
ttgttcatcc cccattttta cctgactttg ggcagcatat tttttttcat cgggcattgg 240
aaccggaaaa cggatggaaa cggatggcag gcagaccccg aacatcctct gctcgggctg 300
tttgccgtca gtaatgtatc gatgacgctt gcttttgtcg gaatatgtgc gttggtgcat 360
tattgctttt cgngaacggg tcaagtgttt gtgtttgcgg cactgctcaa actttatgcg 420
ctgaagccgg tttattggtt cgtgttgcag tttgtgctga tggcgggtgc ctatgtccac 480
cgctgcggta tagaccggca gccgccgtca acgttcggcg gntcgcagct gcgactcggc 540
gggttgacgg cagcgttgat gcagntctcg gtactggtgc tgctgctttc agaaattgga 600
agataa 606

<210> 100
<211> 201
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (125)..(125)
<223> N= Unknown

<220>
<221> misc_feature
<222> (189)..(189)
<223> N= Unknown

<400> 100

Met Ile Leu Leu His Leu Asp Phe Leu Ser Ala Leu Leu Tyr Ala Ala
1 5 10 15

Val Phe Leu Phe Leu Ile Phe Arg Ala Gly Met Leu Gln Trp Phe Trp
20 25 30

Ala Ser Ile Met Leu Trp Leu Gly Ile Ser Val Leu Gly Ala Lys Leu
35 40 45

Met Pro Gly Ile Trp Gly Met Thr Arg Ala Ala Pro Leu Phe Ile Pro
50 55 60

His Phe Tyr Leu Thr Leu Gly Ser Ile Phe Phe Phe Ile Gly His Trp
65 70 75 80

Asn Arg Lys Thr Asp Gly Asn Gly Trp Gln Ala Asp Pro Glu His Pro
85 90 95

Leu Leu Gly Leu Phe Ala Val Ser Asn Val Ser Met Thr Leu Ala Phe
100 105 110

Val Gly Ile Cys Ala Leu Val His Tyr Cys Phe Ser Xaa Thr Val Gln
115 120 125

Val Phe Val Phe Ala Ala Leu Leu Lys Leu Tyr Ala Leu Lys Pro Val
130 135 140

Tyr Trp Phe Val Leu Gln Phe Val Leu Met Ala Val Ala Tyr Val His
145 150 155 160

Arg Cys Gly Ile Asp Arg Gln Pro Pro Ser Thr Phe Gly Gly Ser Gln
165 170 175

Leu Arg Leu Gly Gly Leu Thr Ala Ala Leu Met Gln Xaa Ser Val Leu
180 185 190

Val Leu Leu Leu Ser Glu Ile Gly Arg
195 200

<210> 101

<211> 606

<212> DNA

<213> *Neisseria gonorrhoeae*

<220>

<221> misc_feature

<222> (125)..(125)

<223> N= Unknown

<220>

<221> misc_feature

<222> (189)..(189)

<223> N= Unknown

<400> 101

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atctcggttt	taggggtaaa	gctgatgccg	gggatgtggg	gaatgaccgc	cgccgcgcct	180
ttgttcatcc	cccattttta	cctgactttg	ggcagcatat	tttttttcat	cggggtattgg	240
aaccggaaaa	cagatggaaa	cggatggcag	gcagaccccg	aacatccgct	gctcgggctt	300
tttgccgtca	gtaatgtatc	gatgacgctt	gcttttgcgc	gaatatgtgc	gttggtgcat	360
tattgctttt	cggaacgggt	tcaagtgttt	gtgtttgcgc	cattgctcaa	actttatgcg	420
ctgaagccgg	tttattgggt	cgtgttgcag	tttgtattga	tggcggttgc	ctatgtccac	480
cgctgcggta	tagaccggca	gccgccgtca	acgttcggcg	gttcgcagct	gcgactcggc	540
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agatga						606

<210> 102
 <211> 201
 <212> PRT
 <213> Neisseria meningitidis

<400> 102
 Met Ile Leu Leu His Leu Asp Phe Leu Ser Ala Leu Leu Tyr Ala Ala
 1 5 10 15
 Val Phe Leu Phe Leu Ile Phe Arg Ala Gly Met Leu Gln Trp Phe Trp
 20 25 30
 Ala Ser Ile Ala Leu Trp Leu Gly Ile Ser Val Leu Gly Val Lys Leu
 35 40 45
 Met Pro Gly Met Trp Gly Met Thr Arg Ala Ala Pro Leu Phe Ile Pro
 50 55 60
 His Phe Tyr Leu Thr Leu Gly Ser Ile Phe Phe Phe Ile Gly Tyr Trp
 65 70 75 80
 Asn Arg Lys Thr Asp Gly Asn Gly Trp Gln Ala Asp Pro Glu His Pro
 85 90 95
 Leu Leu Gly Leu Phe Ala Val Ser Asn Val Ser Met Thr Leu Ala Phe
 100 105 110
 Val Gly Ile Cys Ala Leu Val His Tyr Cys Phe Ser Gly Thr Val Gln
 115 120 125
 Val Phe Val Phe Ala Ala Leu Leu Lys Leu Tyr Ala Leu Lys Pro Val
 130 135 140
 Tyr Trp Phe Val Leu Gln Phe Val Leu Met Ala Val Ala Tyr Val His
 145 150 155 160
 Arg Cys Gly Ile Asp Arg Gln Pro Pro Ser Thr Phe Gly Gly Ser Gln
 165 170 175
 Leu Arg Leu Gly Val Leu Ala Ala Met Leu Met Gln Val Ala Val Thr
 180 185 190
 Ala Met Leu Leu Ala Glu Ile Gly Arg
 195 200

<210> 103
<211> 308
<212> DNA
<213> *Neisseria gonorrhoeae*

<220>
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<222> (30)..(30)
<223> N= Unknown

<220>
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<222> (161)..(161)
<223> N= Unknown

<220>
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<222> (163)..(163)
<223> N= Unknown

<220>
<221> misc_feature
<222> (177)..(177)
<223> N= Unknown

<220>
<221> misc_feature
<222> (306)..(306)
<223> N= Unknown

<400> 103
atgaaaaccc cactcctcaa gcctctgctn attacctcgc ttcccgtttt cgccagtgtt 60
tttaccgccg cctccatcgt ctggcagcta ggcgaaacca agctcgccat gcccttcgta 120
ctcggcatca tcgccggcgg ccttgctgat ttggacaacc ncntgaccgg acggctnaaa 180
aacatcatca ccaccgtcgc cctgttcacc ctctcctcgc tcacggcaca aagcaccctc 240
ggcacagggc tgcccttcac cctcgccatg accctgatga cttcgcttca ccatttttagg 300
cgcggnccg 308

<210> 104
<211> 103
<212> PRT
<213> *Neisseria meningitidis*

<220>
<221> misc_feature
<222> (54)..(55)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (95)..(96)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (103)..(103)

<223> Xaa= any amino acid

<400> 104

Met Lys Thr Pro Leu Leu Lys Pro Leu Leu Ile Thr Ser Leu Pro Val
1 5 10 15
Phe Ala Ser Val Phe Thr Ala Ala Ser Ile Val Trp Gln Leu Gly Glu
20 25 30
Pro Lys Leu Ala Met Pro Phe Val Leu Gly Ile Ile Ala Gly Gly Leu
35 40 45
Val Asp Leu Asp Asn Xaa Xaa Thr Gly Arg Leu Lys Asn Ile Ile Thr
50 55 60
Thr Val Ala Leu Phe Thr Leu Ser Ser Leu Thr Ala Gln Ser Thr Leu
65 70 75 80
Gly Thr Gly Leu Pro Phe Ile Leu Ala Met Thr Leu Met Thr Xaa Xaa
85 90 95
Phe Thr Ile Leu Gly Ala Xaa
100

<210> 105

<211> 2151

<212> DNA

<213> Neisseria meningitidis

<400> 105

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tttaccgccg	cctccatcgt	ctggcagcta	ggcgaaccca	agctcgccat	gcccttcgta	120
ctcggcatca	tcgccggcgg	ccttgctgat	ttggacaacc	gcctgaccgg	acggctgaaa	180
aacatcatca	ccaccgtcgc	cctgttcacc	ctctcctcgc	tcacggcaca	aagcaccctc	240
ggcacagggc	tgcccttcat	cctcgccatg	accctgatga	ccttcggcctt	caccatttta	300
ggcgcggtcg	gggtcaaata	ccgcaccttc	gccttcgggtg	cactcgccgt	cgccacctac	360
accacactta	cctacacccc	cgaaacctac	tggtgacca	accccttcat	gattttatgc	420
ggcaccgtac	tgtacagcac	cgccatcctc	ctgttccaaa	tcgtcctgcc	ccaccgcccc	480
gtccaagaaa	gcgtcgccaa	cgccatcgac	gcactcggcg	gctacctcga	agccaaagcc	540
gactttcttcg	accccgatga	ggcagcctgg	ataggcaacc	gccacatcga	cctcgccatg	600
agcaacaccg	gcgtcatcac	cgccctcaac	caatgccgtt	ccgccctgtt	ttaccgcctt	660
cgcgggcaaac	accgccaccc	gcgcaccgcc	aaaatgctgc	gttactactt	tgccgcccac	720
gacatacacg	aacgcatcag	ctccgcccac	gtcgattatc	aggaaatgtc	cgaaaaattc	780
aaaaaacaccg	acatcatctt	ccgcatccac	cgcttgcctc	aaatgcaggg	acaagcctgc	840
cgcaacaccg	cccaagccct	gcgcgcaagc	aaagactacg	tttacagcaa	acgcctcggc	900
cgcgccatcg	aaggctgccc	ccaatcgctg	cgcttccttt	cagacagcaa	cgacagtccc	960
gacatccgcc	acctgcgcgc	ccttctcgac	aacctcggca	gcgtcgacca	gcagttccgc	1020
caactccagc	acaacggcct	gcaggcagaa	aacgaccgca	tgggcgacac	ccgcatcgcc	1080
gccctcgaaa	ccagcagcct	caaaaacacc	tggcaggcaa	tccgtccgca	gctaaacctc	1140
gaatcaggcg	tattccgcca	tgccgtccgc	ctgtccctcg	tcgttgccgc	cgcttcgacc	1200
atcgtcgaag	ccctcaacct	caacctcggc	tactggatac	tactgaccgc	ccttttcgtc	1260
tgccaaccca	actacaccgc	caccaaagc	cgcttccgcc	agcgcategc	cggcaccgta	1320
ctcgcggtaa	tcgtcggctc	gctcgtcccc	tacttcaccc	cgtctgtcga	aaccaaactc	1380
tggattgtca	tgccaggtac	caccctcttt	ttcatgaccc	gcacctacaa	atacagtttc	1440
tccaccttct	tcattaccat	tcaagccctg	accagcctct	ccctcgcagg	tttggacgta	1500
tacgccgcca	tgcccgtacg	catcatcgac	accattatcg	gcgcattcct	tgcttggggc	1560

gcagtcagct	acctgtggcc	agactggaaa	tacctcacgc	tcgaacgcac	cgccgccctt	1620
gccgtatgca	gcaacgggtgc	ctatctcgaa	aaaatcaccg	aacgcctcaa	aagcggcgaa	1680
accggcgacg	acgtcgaata	ccgcgccacc	cgccgcgcgc	cccacgaaca	caccgccgcc	1740
ctcagcagca	ccctttccga	catgagcagc	gaacccgcaa	aattcgccga	cagcctgcaa	1800
cccggcttta	ccctgtctca	aaccggctac	gccctgaccg	gctacatctc	cgccctcggc	1860
gcataccgca	gcgaaatgca	cgaagaatgc	agccccgact	ttaccgcaca	gttccacctc	1920
gccgccgaac	acaccgcccc	catcttccaa	cacctgcccc	aaaccgaacc	cgacgacttt	1980
cagacagcac	tggatacact	gcgcggcgaa	ctcgacaccc	tccgcaccca	cagcagcgga	2040
acacaaagcc	acatctctct	ccaacagctc	caactcatcg	cccgcagact	cgaaccctac	2100
taccgcgcct	accgccaaat	tccgcacagg	cagccccaaa	atgcagcctg	a	2151

<210> 106
 <211> 716
 <212> PRT
 <213> Neisseria meningitidis

<400> 106
 Met Lys Thr Pro Leu Lys Pro Leu Leu Ile Thr Ser Leu Pro Val
 1 5 10 15
 Phe Ala Ser Val Phe Thr Ala Ala Ser Ile Val Trp Gln Leu Gly Glu
 20 25 30
 Pro Lys Leu Ala Met Pro Phe Val Leu Gly Ile Ile Ala Gly Gly Leu
 35 40 45
 Val Asp Leu Asp Asn Arg Leu Thr Gly Arg Leu Lys Asn Ile Ile Thr
 50 55 60
 Thr Val Ala Leu Phe Thr Leu Ser Ser Leu Thr Ala Gln Ser Thr Leu
 65 70 75 80
 Gly Thr Gly Leu Pro Phe Ile Leu Ala Met Thr Leu Met Thr Phe Gly
 85 90 95
 Phe Thr Ile Leu Gly Ala Val Gly Leu Lys Tyr Arg Thr Phe Ala Phe
 100 105 110
 Gly Ala Leu Ala Val Ala Thr Tyr Thr Thr Leu Thr Tyr Thr Pro Glu
 115 120 125
 Thr Tyr Trp Leu Thr Asn Pro Phe Met Ile Leu Cys Gly Thr Val Leu
 130 135 140
 Tyr Ser Thr Ala Ile Leu Leu Phe Gln Ile Val Leu Pro His Arg Pro
 145 150 155 160
 Val Gln Glu Ser Val Ala Asn Ala Tyr Asp Ala Leu Gly Gly Tyr Leu
 165 170 175
 Glu Ala Lys Ala Asp Phe Phe Asp Pro Asp Glu Ala Ala Trp Ile Gly
 180 185 190
 Asn Arg His Ile Asp Leu Ala Met Ser Asn Thr Gly Val Ile Thr Ala
 195 200 205

Phe	Asn	Gln	Cys	Arg	Ser	Ala	Leu	Phe	Tyr	Arg	Leu	Arg	Gly	Lys	His	210	215	220	
Arg	His	Pro	Arg	Thr	Ala	Lys	Met	Leu	Arg	Tyr	Tyr	Phe	Ala	Ala	Gln	225	230	235	240
Asp	Ile	His	Glu	Arg	Ile	Ser	Ser	Ala	His	Val	Asp	Tyr	Gln	Glu	Met	245	250	255	
Ser	Glu	Lys	Phe	Lys	Asn	Thr	Asp	Ile	Ile	Phe	Arg	Ile	His	Arg	Leu	260	265	270	
Leu	Glu	Met	Gln	Gly	Gln	Ala	Cys	Arg	Asn	Thr	Ala	Gln	Ala	Leu	Arg	275	280	285	
Ala	Ser	Lys	Asp	Tyr	Val	Tyr	Ser	Lys	Arg	Leu	Gly	Arg	Ala	Ile	Glu	290	295	300	
Gly	Cys	Arg	Gln	Ser	Leu	Arg	Leu	Leu	Ser	Asp	Ser	Asn	Asp	Ser	Pro	305	310	315	320
Asp	Ile	Arg	His	Leu	Arg	Arg	Leu	Leu	Asp	Asn	Leu	Gly	Ser	Val	Asp	325	330	335	
Gln	Gln	Phe	Arg	Gln	Leu	Gln	His	Asn	Gly	Leu	Gln	Ala	Glu	Asn	Asp	340	345	350	
Arg	Met	Gly	Asp	Thr	Arg	Ile	Ala	Ala	Leu	Glu	Thr	Ser	Ser	Leu	Lys	355	360	365	
Asn	Thr	Trp	Gln	Ala	Ile	Arg	Pro	Gln	Leu	Asn	Leu	Glu	Ser	Gly	Val	370	375	380	
Phe	Arg	His	Ala	Val	Arg	Leu	Ser	Leu	Val	Val	Ala	Ala	Ala	Cys	Thr	385	390	395	400
Ile	Val	Glu	Ala	Leu	Asn	Leu	Asn	Leu	Gly	Tyr	Trp	Ile	Leu	Leu	Thr	405	410	415	
Ala	Leu	Phe	Val	Cys	Gln	Pro	Asn	Tyr	Thr	Ala	Thr	Lys	Ser	Arg	Val	420	425	430	
Arg	Gln	Arg	Ile	Ala	Gly	Thr	Val	Leu	Gly	Val	Ile	Val	Gly	Ser	Leu	435	440	445	
Val	Pro	Tyr	Phe	Thr	Pro	Ser	Val	Glu	Thr	Lys	Leu	Trp	Ile	Val	Ile	450	455	460	
Ala	Ser	Thr	Thr	Leu	Phe	Phe	Met	Thr	Arg	Thr	Tyr	Lys	Tyr	Ser	Phe	465	470	475	480
Ser	Thr	Phe	Phe	Ile	Thr	Ile	Gln	Ala	Leu	Thr	Ser	Leu	Ser	Leu	Ala	485	490	495	
Gly	Leu	Asp	Val	Tyr	Ala	Ala	Met	Pro	Val	Arg	Ile	Ile	Asp	Thr	Ile	500	505	510	

Ile Gly Ala Ser Leu Ala Trp Ala Ala Val Ser Tyr Leu Trp Pro Asp
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 Trp Lys Tyr Leu Thr Leu Glu Arg Thr Ala Ala Leu Ala Val Cys Ser
 530 535 540
 Asn Gly Ala Tyr Leu Glu Lys Ile Thr Glu Arg Leu Lys Ser Gly Glu
 545 550 555 560
 Thr Gly Asp Asp Val Glu Tyr Arg Ala Thr Arg Arg Arg Ala His Glu
 565 570 575
 His Thr Ala Ala Leu Ser Ser Thr Leu Ser Asp Met Ser Ser Glu Pro
 580 585 590
 Ala Lys Phe Ala Asp Ser Leu Gln Pro Gly Phe Thr Leu Leu Lys Thr
 595 600 605
 Gly Tyr Ala Leu Thr Gly Tyr Ile Ser Ala Leu Gly Ala Tyr Arg Ser
 610 615 620
 Glu Met His Glu Glu Cys Ser Pro Asp Phe Thr Ala Gln Phe His Leu
 625 630 635 640
 Ala Ala Glu His Thr Ala His Ile Phe Gln His Leu Pro Glu Thr Glu
 645 650 655
 Pro Asp Asp Phe Gln Thr Ala Leu Asp Thr Leu Arg Gly Glu Leu Asp
 660 665 670
 Thr Leu Arg Thr His Ser Ser Gly Thr Gln Ser His Ile Leu Leu Gln
 675 680 685
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 <211> 2151
 <212> DNA
 <213> Neisseria meningitidis

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 agcaacaccg gcgtcatcac cgcttcaaac caatgccgtt ccgccctgtt ttaccgcctt 660

cgcgggcaaac	accgccaccc	gcgcacccgc	aaaatgctgc	gctactactt	cgccgcccaa	720
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aaaaacaccg	acatcatctt	ccgcatccac	cgctgtctcg	aaatgcaggg	acaagcctgc	840
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cgcgccatcg	aaggctgccg	ccaatcgctg	cgctccttt	cagacagcaa	cgacaatccc	960
gacatccgcc	acctgcgccg	ccttctcgac	aacctcggca	gcgtcgacca	gcagttccgc	1020
caactccagc	acaacggcct	gcaggcagaa	aacgaccgca	tgggcgacac	ccgcatcgcc	1080
gccctcgaaa	cggcagcct	caaaaacacc	tggcaggcaa	tccgtccgca	gctaaacctc	1140
gaatcaggcg	tattccgcc	tgccgtccgc	ctgtcccttg	tcgttgccgc	cgctgcacc	1200
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tacgccgcca	tgcccgtagc	catcatcgac	accattatcg	gcgcacccct	tgccctgggcg	1560
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gcataccgca	gcgaaatgca	cgaagaatgc	agccccgact	ttaccgcaca	gttccacctc	1920
gccgccgaac	acaccgcccc	catcttccaa	cacctgcccg	aaaccgaacc	cgacgacttt	1980
cagacagcac	tggatacact	gcgcggcgaa	ctcgacaccc	tccgcaccca	cagcagcgga	2040
acacaaagcc	acatcctcct	ccaacagctc	caactcatcg	cccggcagct	cgaaccctac	2100
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<211> 716

<212> PRT

<213> Neisseria meningitidis

<400> 108

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			20					25					30		

Pro	Lys	Leu	Ala	Met	Pro	Phe	Val	Leu	Gly	Ile	Ile	Ala	Gly	Gly	Leu
		35					40					45			

Val	Asp	Leu	Asp	Asn	Arg	Leu	Thr	Gly	Arg	Leu	Lys	Asn	Ile	Ile	Ala
	50					55					60				

Thr	Val	Ala	Leu	Phe	Thr	Leu	Ser	Ser	Leu	Val	Ala	Gln	Ser	Thr	Leu
65					70					75					80

Gly	Thr	Gly	Leu	Pro	Phe	Ile	Leu	Ala	Met	Thr	Leu	Met	Thr	Phe	Gly
				85					90					95	

Phe	Thr	Ile	Met	Gly	Ala	Val	Gly	Leu	Lys	Tyr	Arg	Thr	Phe	Ala	Phe
			100					105					110		

Gly	Ala	Leu	Ala	Val	Ala	Thr	Tyr	Thr	Thr	Leu	Thr	Tyr	Thr	Pro	Glu
		115						120				125			

Thr	Tyr	Trp	Leu	Thr	Asn	Pro	Phe	Met	Ile	Leu	Cys	Gly	Thr	Val	Leu	
130						135					140					
Tyr	Ser	Thr	Ala	Ile	Ile	Leu	Phe	Gln	Ile	Ile	Leu	Pro	His	Arg	Pro	
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Val	Gln	Glu	Asn	Val	Ala	Asn	Ala	Tyr	Glu	Ala	Leu	Gly	Ser	Tyr	Leu	
			165						170						175	
Glu	Ala	Lys	Ala	Asp	Phe	Phe	Asp	Pro	Asp	Glu	Ala	Glu	Trp	Ile	Gly	
			180					185					190			
Asn	Arg	His	Ile	Asp	Leu	Ala	Met	Ser	Asn	Thr	Gly	Val	Ile	Thr	Ala	
		195					200					205				
Phe	Asn	Gln	Cys	Arg	Ser	Ala	Leu	Phe	Tyr	Arg	Leu	Arg	Gly	Lys	His	
	210					215					220					
Arg	His	Pro	Arg	Thr	Ala	Lys	Met	Leu	Arg	Tyr	Tyr	Phe	Ala	Ala	Gln	
225					230					235					240	
Asp	Ile	His	Glu	Arg	Ile	Ser	Ser	Ala	His	Val	Asp	Tyr	Gln	Glu	Met	
			245					250						255		
Ser	Glu	Lys	Phe	Lys	Asn	Thr	Asp	Ile	Ile	Phe	Arg	Ile	His	Arg	Leu	
		260						265					270			
Leu	Glu	Met	Gln	Gly	Gln	Ala	Cys	Arg	Asn	Thr	Ala	Gln	Ala	Leu	Arg	
	275						280					285				
Ala	Ser	Lys	Asp	Tyr	Val	Tyr	Ser	Lys	Arg	Leu	Gly	Arg	Ala	Ile	Glu	
	290					295					300					
Gly	Cys	Arg	Gln	Ser	Leu	Arg	Leu	Leu	Ser	Asp	Ser	Asn	Asp	Asn	Pro	
305					310					315					320	
Asp	Ile	Arg	His	Leu	Arg	Arg	Leu	Leu	Asp	Asn	Leu	Gly	Ser	Val	Asp	
			325						330					335		
Gln	Gln	Phe	Arg	Gln	Leu	Gln	His	Asn	Gly	Leu	Gln	Ala	Glu	Asn	Asp	
		340						345					350			
Arg	Met	Gly	Asp	Thr	Arg	Ile	Ala	Ala	Leu	Glu	Thr	Gly	Ser	Leu	Lys	
		355					360					365				
Asn	Thr	Trp	Gln	Ala	Ile	Arg	Pro	Gln	Leu	Asn	Leu	Glu	Ser	Gly	Val	
	370					375					380					
Phe	Arg	His	Ala	Val	Arg	Leu	Ser	Leu	Val	Val	Ala	Ala	Ala	Cys	Thr	
385					390					395					400	
Ile	Val	Glu	Ala	Leu	Asn	Leu	Asn	Leu	Gly	Tyr	Trp	Ile	Leu	Leu	Thr	
			405						410					415		
Ala	Leu	Phe	Val	Cys	Gln	Pro	Asn	Tyr	Thr	Ala	Thr	Lys	Ser	Arg	Val	
		420						425					430			

Arg Gln Arg Ile Ala Gly Thr Val Leu Gly Val Ile Val Gly Ser Leu
 435 440 445
 Val Pro Tyr Phe Thr Pro Ser Val Glu Thr Lys Leu Trp Ile Val Ile
 450 455 460
 Ala Ser Thr Thr Leu Phe Phe Met Thr Arg Thr Tyr Lys Tyr Ser Phe
 465 470 475 480
 Ser Thr Phe Phe Ile Thr Ile Gln Ala Leu Thr Ser Leu Ser Leu Ala
 485 490 495
 Gly Leu Asp Val Tyr Ala Ala Met Pro Val Arg Ile Ile Asp Thr Ile
 500 505 510
 Ile Gly Ala Ser Leu Ala Trp Ala Ala Val Ser Tyr Leu Trp Pro Asp
 515 520 525
 Trp Lys Tyr Leu Thr Leu Glu Arg Thr Ala Ala Leu Ala Val Cys Ser
 530 535 540
 Asn Gly Ala Tyr Leu Glu Lys Ile Thr Glu Arg Leu Lys Ser Gly Glu
 545 550 555 560
 Thr Gly Asp Asp Val Glu Tyr Arg Ala Thr Arg Arg Arg Ala His Glu
 565 570 575
 His Thr Ala Ala Leu Ser Ser Thr Leu Ser Asp Met Ser Ser Glu Pro
 580 585 590
 Ala Lys Phe Ala Asp Ser Leu Gln Pro Gly Phe Thr Leu Leu Lys Thr
 595 600 605
 Gly Tyr Ala Leu Thr Gly Tyr Ile Ser Ala Leu Gly Ala Tyr Arg Ser
 610 615 620
 Glu Met His Glu Glu Cys Ser Pro Asp Phe Thr Ala Gln Phe His Leu
 625 630 635 640
 Ala Ala Glu His Thr Ala His Ile Phe Gln His Leu Pro Glu Thr Glu
 645 650 655
 Pro Asp Asp Phe Gln Thr Ala Leu Asp Thr Leu Arg Gly Glu Leu Asp
 660 665 670
 Thr Leu Arg Thr His Ser Ser Gly Thr Gln Ser His Ile Leu Leu Gln
 675 680 685
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 Arg Gln Ile Pro His Arg Gln Pro Gln Asn Ala Ala
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<212> DNA
<213> Neisseria gonorrhoeae

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<213> Neisseria meningitidis

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35 40 45
Val Asp Leu Asp Asn Arg Leu Thr Gly Arg Leu Lys Asn Ile Ile Ala
50 55 60
Thr Val Ala Leu Phe Thr Leu Ser Ser Leu Thr Ala Gln Ser Thr Leu
65 70 75 80
Gly Thr Gly Leu Pro Phe Ile Leu Ala Met Thr Leu Met Thr Phe Gly
85 90 95
Phe Thr Ile Leu Gly Ala Val Gly Leu Lys Tyr Arg Thr Phe Ala Phe
100 105 110
Gly Ala Leu Ala Val Ala Thr Tyr Thr Thr Leu Thr Tyr Thr Pro Glu
115 120 125
Thr Tyr Trp Leu Thr Asn Pro Phe Met Ile Leu Cys Gly Thr Val Leu
130 135 140
Tyr Ser Thr Ala Ile Ile Leu Phe Gln Ile Ile Leu Pro His Arg Pro
145 150 155 160
Val Gln Glu Ser Val Ala Asn Ala Tyr Glu Ala Leu Gly Gly Tyr Leu
165 170 175
Glu Ala Lys Ala Asp Phe Phe Asp Pro Asp Glu Ala Ala Trp Ile Gly
180 185 190
Asn Arg His Ile Asp Leu Ala Met Ser Asn Thr Gly Val Ile Thr Ala
195 200 205

Phe Asn Gln Cys Arg Ser Ala Leu Phe Tyr Arg Leu Arg Gly Lys His
 210 215 220

Arg His Pro Arg Thr Ala Lys Met Leu Arg Tyr Tyr Phe Ala Ala Gln
 225 230 235 240

Asp Ile His Glu Arg Ile Ser Ser Ala His Val Asp Tyr Gln Glu Met
 245 250 255

Ser Glu Lys Phe Lys Asn Thr Asp Ile Ile Phe Arg Ile Arg Arg Leu
 260 265 270

Leu Glu Met Gln Gly Gln Ala Cys Arg Asn Thr Ala Gln Ala Ile Arg
 275 280 285

Ser Gly Lys Asp Tyr Val Tyr Ser Lys Arg Leu Gly Arg Ala Ile Glu
 290 295 300

Gly Cys Arg Gln Ser Leu Arg Leu Leu Ser Asp Gly Asn Asp Ser Pro
 305 310 315 320

Asp Ile Arg His Leu Ser Arg Leu Leu Asp Asn Leu Gly Ser Val Asp
 325 330 335

Gln Gln Phe Arg Gln Leu Arg His Ser Asp Ser Pro Ala Glu Asn Asp
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Arg Met Gly Asp Thr Arg Ile Ala Ala Leu Glu Thr Gly Ser Phe Lys
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Asn Thr
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<210> 111

<211> 2151

<212> DNA

<213> Neisseria gonorrhoeae

<400> 111

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 <211> 716
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 <213> Neisseria gonorrhoeae

<400> 112

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			20					25						30	
Pro	Lys	Leu	Ala	Met	Pro	Phe	Val	Leu	Gly	Ile	Ile	Ala	Gly	Gly	Leu
		35					40					45			
Val	Asp	Leu	Asp	Asn	Arg	Leu	Thr	Gly	Arg	Leu	Lys	Asn	Ile	Ile	Ala
	50					55					60				
Thr	Val	Ala	Leu	Phe	Thr	Leu	Ser	Ser	Leu	Thr	Ala	Gln	Ser	Thr	Leu
65					70					75					80
Gly	Thr	Gly	Leu	Pro	Phe	Ile	Leu	Ala	Met	Thr	Leu	Met	Thr	Phe	Gly
				85					90					95	
Phe	Thr	Ile	Leu	Gly	Ala	Val	Gly	Leu	Lys	Tyr	Arg	Thr	Phe	Ala	Phe
			100					105					110		
Gly	Ala	Leu	Ala	Val	Ala	Thr	Tyr	Thr	Thr	Leu	Thr	Tyr	Thr	Pro	Glu
		115						120				125			
Thr	Tyr	Trp	Leu	Thr	Asn	Pro	Phe	Met	Ile	Leu	Cys	Gly	Thr	Val	Leu
	130					135					140				
Tyr	Ser	Thr	Ala	Ile	Ile	Leu	Phe	Gln	Ile	Ile	Leu	Pro	His	Arg	Pro
145					150					155					160

Val	Gln	Glu	Ser	Val	Ala	Asn	Ala	Tyr	Glu	Ala	Leu	Gly	Gly	Tyr	Leu	165	170	175
Glu	Ala	Lys	Ala	Asp	Phe	Phe	Asp	Pro	Asp	Glu	Ala	Ala	Trp	Ile	Gly	180	185	190
Asn	Arg	His	Ile	Asp	Leu	Ala	Met	Ser	Asn	Thr	Gly	Val	Ile	Thr	Ala	195	200	205
Phe	Asn	Gln	Cys	Arg	Ser	Ala	Leu	Phe	Tyr	Arg	Leu	Arg	Gly	Lys	His	210	215	220
Arg	His	Pro	Arg	Thr	Ala	Lys	Met	Leu	Arg	Tyr	Tyr	Phe	Ala	Ala	Gln	225	230	235
Asp	Ile	His	Glu	Arg	Ile	Ser	Ser	Ala	His	Val	Asp	Tyr	Gln	Glu	Met	245	250	255
Ser	Glu	Lys	Phe	Lys	Asn	Thr	Asp	Ile	Ile	Phe	Arg	Ile	Arg	Arg	Leu	260	265	270
Leu	Glu	Met	Gln	Gly	Gln	Ala	Cys	Arg	Asn	Thr	Ala	Gln	Ala	Ile	Arg	275	280	285
Ser	Gly	Lys	Asp	Tyr	Val	Tyr	Ser	Lys	Arg	Leu	Gly	Arg	Ala	Ile	Glu	290	295	300
Gly	Cys	Arg	Gln	Ser	Leu	Arg	Leu	Leu	Ser	Asp	Gly	Asn	Asp	Ser	Pro	305	310	315
Asp	Ile	Arg	His	Leu	Ser	Arg	Leu	Leu	Asp	Asn	Leu	Gly	Ser	Val	Asp	325	330	335
Gln	Gln	Phe	Arg	Gln	Leu	Arg	His	Ser	Asp	Ser	Pro	Ala	Glu	Asn	Asp	340	345	350
Arg	Met	Gly	Asp	Thr	Arg	Ile	Ala	Ala	Leu	Glu	Thr	Gly	Ser	Phe	Lys	355	360	365
Asn	Thr	Trp	Gln	Ala	Ile	Arg	Pro	Gln	Leu	Asn	Leu	Glu	Ser	Cys	Val	370	375	380
Phe	Arg	His	Ala	Val	Arg	Leu	Ser	Leu	Val	Val	Ala	Ala	Ala	Cys	Thr	385	390	395
Ile	Val	Glu	Ala	Leu	Asn	Leu	Asn	Leu	Gly	Tyr	Trp	Ile	Leu	Leu	Thr	405	410	415
Ala	Leu	Phe	Val	Cys	Gln	Pro	Asn	Tyr	Thr	Ala	Thr	Lys	Ser	Arg	Val	420	425	430
Tyr	Gln	Arg	Ile	Ala	Gly	Thr	Val	Leu	Gly	Val	Ile	Val	Gly	Ser	Leu	435	440	445
Val	Pro	Tyr	Phe	Thr	Pro	Ser	Val	Glu	Thr	Lys	Leu	Trp	Ile	Val	Ile	450	455	460

Ala Gly Thr Thr Leu Phe Phe Met Thr Arg Thr Tyr Lys Tyr Ser Phe
 465 470 475 480
 Ser Thr Phe Phe Ile Thr Ile Gln Ala Leu Thr Ser Leu Ser Leu Ala
 485 490 495
 Gly Leu Asp Val Tyr Ala Ala Met Pro Val Arg Ile Ile Asp Thr Ile
 500 505 510
 Ile Gly Ala Ser Leu Ala Trp Ala Ala Val Ser Tyr Leu Trp Pro Asp
 515 520 525
 Trp Lys Tyr Leu Thr Leu Glu Arg Thr Ala Ala Leu Ala Val Cys Ser
 530 535 540
 Ser Gly Thr Tyr Leu Gln Lys Ile Ala Glu Arg Leu Lys Thr Gly Glu
 545 550 555 560
 Thr Gly Asp Asp Ile Glu Tyr Arg Ile Thr Arg Arg Arg Ala His Glu
 565 570 575
 His Thr Ala Ala Leu Ser Ser Thr Leu Ser Asp Met Ser Ser Glu Pro
 580 585 590
 Ala Lys Phe Ala Asp Ser Leu Gln Pro Gly Phe Thr Leu Leu Lys Thr
 595 600 605
 Gly Tyr Ala Leu Thr Gly Tyr Ile Ser Ala Leu Gly Ala Tyr Arg Ser
 610 615 620
 Glu Met His Glu Glu Cys Ser Pro Asp Phe Thr Ala Gln Phe His Leu
 625 630 635 640
 Ala Ala Glu His Thr Ala His Ile Phe Gln His Leu Pro Asp Met Gly
 645 650 655
 Pro Asp Asp Phe Gln Thr Ala Leu Asp Thr Leu Arg Gly Glu Leu Gly
 660 665 670
 Thr Leu Arg Thr Arg Ser Ser Gly Thr Gln Ser His Ile Leu Leu Gln
 675 680 685
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 705 710 715

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 <211> 1363
 <212> DNA
 <213> Neisseria meningitidis

<400> 113
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 ggatttgatgc gcgatacggt cattgcgcgg gcattcggcg cgggtatggc gacggatgcg 120

ttttttgtcg	cgttcaaact	gccccaacctg	cttcgccgcg	tgtttgcgga	gggggcggtt	180
gccccagcgt	ttgtgccgat	tttggcgga	tacaaggaaa	cgcgttcaaa	agaggcggcg	240
aagcctttat	ccgccatgtg	gcggggatgc	tgctggtttg	actggttata	gttaccgcgc	300
tgggcatact	tgccgcgcct	tgggtgattt	atgtttccgc	acccgagttt	tgcccaagat	360
gccgacaaat	ttcagctctc	catcgatttg	ctgcggatta	cgtttcctta	tatattattg	420
atttccctgt	cttcattttg	cggtcggta	ctcaattctt	atcataagtt	cggcattccg	480
gcgtttacgc	cacgtttctg	aacgtgtcgt	ttatcgtatt	cgcgctgttt	ttcgtgccgt	540
atttcgatcc	gcccgttacc	gcgcyygcgt	gggcggctct	tgctggcggc	attttgcaac	600
tcgrmttcca	actgccctgg	ctggcgaaac	tgggcttttt	gaaactgccc	aaactgagtt	660
tcaaagatgc	ggcgggtcaac	cgcgtgatga	aacagatggc	gcctgcgatt	ttgggcgtga	720
gcgtggcgca	ggtttctttg	gtgatcaaca	cgattttcgc	gtcttatctg	caatcgggca	780
gcgtttcatg	gatgtattac	gccgaccgca	tgatggagct	gccagcggc	gtgctggggg	840
cggcactcgg	tacgattttg	ctgcgcgact	tgtccaaaca	ctcggcaaac	caagatacgg	900
aacagttttc	cgccctgtct	gactgggggt	tgcgcctgtg	catgctgctg	acgctgccgg	960
cggcgggtcg	actggcggtg	ttgtcgttcc	cgtcggtggc	gacgctgttt	atgtaccgcg	1020
watttacgct	gtttgacgcg	cagatgacgc	aacacgcgct	gattgcctat	tctttcggtt	1080
taatcggtt	aatcatgatt	aaagtgttgg	cacccggctt	ctatgcgcgg	caaaacatca	1140
awamgcccgt	caaaatcgcc	atcttcacgc	tcatctgcmc	gcagttgatg	aaccttgsct	1200
ttaycgcccc	actrraacrc	astcggactt	tcgcttgcca	tcggtctggg	cgcgtgtatc	1260
aatgccggat	tgttgtttta	cctgttgccg	agacacggta	tttaccaacc	tggcaagggt	1320
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<210> 114
 <211> 454
 <212> PRT
 <213> *Neisseria meningitidis*

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 <223> Xaa= any amino acid

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 <223> Xaa= any amino acid

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 <223> Xaa= any amino acid

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 <223> Xaa= any amino acid

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<220>
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 <223> Xaa= any amino acid

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 <223> Xaa= any amino acid

<220>
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 <223> Xaa= any amino acid

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 20 25 30
 Gly Ala Gly Met Ala Thr Asp Ala Phe Phe Val Ala Phe Lys Leu Pro
 35 40 45
 Asn Leu Leu Arg Arg Val Phe Ala Glu Gly Ala Phe Ala Gln Ala Phe
 50 55 60
 Val Pro Ile Leu Ala Glu Tyr Lys Glu Thr Arg Ser Lys Glu Ala Xaa
 65 70 75 80
 Glu Ala Phe Ile Arg His Val Ala Gly Met Leu Ser Phe Val Leu Val
 85 90 95
 Ile Val Thr Ala Leu Gly Ile Leu Ala Ala Pro Trp Val Ile Tyr Val
 100 105 110
 Ser Ala Pro Ser Phe Ala Gln Asp Ala Asp Lys Phe Gln Leu Ser Ile
 115 120 125
 Asp Leu Leu Arg Ile Thr Phe Pro Tyr Ile Leu Leu Ile Ser Leu Ser

130					135					140					
Ser	Phe	Val	Gly	Ser	Val	Leu	Asn	Ser	Tyr	His	Lys	Phe	Gly	Ile	Pro
145					150					155					160
Ala	Phe	Thr	Pro	Xaa	Phe	Leu	Asn	Val	Ser	Phe	Ile	Val	Phe	Ala	Leu
				165					170					175	
Phe	Phe	Val	Pro	Tyr	Phe	Asp	Pro	Pro	Val	Thr	Ala	Xaa	Ala	Trp	Ala
			180					185					190		
Val	Phe	Val	Gly	Gly	Ile	Leu	Gln	Leu	Xaa	Phe	Gln	Leu	Pro	Trp	Leu
			195				200					205			
Ala	Lys	Leu	Gly	Phe	Leu	Lys	Leu	Pro	Lys	Leu	Ser	Phe	Lys	Asp	Ala
	210					215					220				
Ala	Val	Asn	Arg	Val	Met	Lys	Gln	Met	Ala	Pro	Ala	Ile	Leu	Gly	Val
225					230					235					240
Ser	Val	Ala	Gln	Val	Ser	Leu	Val	Ile	Asn	Thr	Ile	Phe	Ala	Ser	Tyr
				245					250					255	
Leu	Gln	Ser	Gly	Ser	Val	Ser	Trp	Met	Tyr	Tyr	Ala	Asp	Arg	Met	Met
			260					265					270		
Glu	Leu	Pro	Ser	Gly	Val	Leu	Gly	Ala	Ala	Leu	Gly	Thr	Ile	Leu	Leu
		275					280					285			
Pro	Thr	Leu	Ser	Lys	His	Ser	Ala	Asn	Gln	Asp	Thr	Glu	Gln	Phe	Ser
	290					295					300				
Ala	Leu	Leu	Asp	Trp	Gly	Leu	Arg	Leu	Cys	Met	Leu	Leu	Thr	Leu	Pro
305					310					315					320
Ala	Ala	Val	Gly	Leu	Ala	Val	Leu	Ser	Phe	Pro	Leu	Val	Ala	Thr	Leu
				325					330					335	
Phe	Met	Tyr	Arg	Xaa	Phe	Thr	Leu	Phe	Asp	Ala	Gln	Met	Thr	Gln	His
			340					345					350		
Ala	Leu	Ile	Ala	Tyr	Ser	Phe	Gly	Leu	Ile	Gly	Leu	Ile	Met	Ile	Lys
		355					360					365			
Val	Leu	Ala	Pro	Gly	Phe	Tyr	Ala	Arg	Gln	Asn	Ile	Xaa	Xaa	Pro	Val
		370					375				380				
Lys	Ile	Ala	Ile	Phe	Thr	Leu	Ile	Cys	Xaa	Gln	Leu	Met	Asn	Leu	Xaa
385						390					395				400
Phe	Xaa	Gly	Pro	Leu	Xaa	Xaa	Ile	Gly	Leu	Ser	Leu	Ala	Ile	Gly	Leu
				405				410						415	
Gly	Ala	Cys	Ile	Asn	Ala	Gly	Leu	Leu	Phe	Tyr	Leu	Leu	Arg	Arg	His
			420				425						430		

Gly Ile Tyr Gln Pro Xaa Gln Gly Leu Gly Ser Val Leu Xaa Gln Lys
 435 440 445

Cys Cys Ser Arg Ser Pro
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<210> 115
 <211> 1539
 <212> DNA
 <213> Neisseria meningitidis

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 ttttttgcgc cgttcaaact gcccaacctg cttcgcgcgc tgtttgcgga gggggcgcttt 180
 gcccaagcgt ttgtgccgat tttggcggaa tacaaggaaa cgcgttcaaa agaggcgggcg 240
 gaggctttta tccgccatgt ggcggggatg ctgtcgcttg tactggttat cgttaccgcg 300
 ctgggcatac ttgccgcgcc ttgggtgatt tatgtttccg caccgggttt tgcccaagat 360
 gccgacaaat ttcagctctc catcgatttg ctgcggatta cgtttcctta tatattattg 420
 atttccctgt cttcatttgt cggctcggta ctcaattctt atcataagtt cggcattccg 480
 gcgtttacgc ccacgtttct gaacgtgtcg tttatcgat tcgcgctggt tttcgtgccg 540
 tatttcgatc cgcccggtac cgcgctggcg tgggcgggtc ttgtcggcg cattttgcaa 600
 ctcggttcc aactgccctg gctggcgaaa ctgggctttt tgaaactgcc caaactgagt 660
 ttcaaagatg cggcggtcaa ccgcgtgatg aaacagatgg cgcctgcgat tttgggcgtg 720
 agcgtggcgc aggtttcttt ggtgatcaac acgattttcg cgtcttatct gcaatcgggc 780
 agcgtttcat ggatgtatta cgccgaccgc atgatggagc tgcccagcgg cgtgctgggg 840
 gcggcactcg gtacgatttt gctgccgact ttgtccaaac actcggcaaa ccaagatacg 900
 gaacagtttt ccgccctgct cgactggggg ttgcgcctgt gcatgctgct gacgctgccg 960
 gcggcggtcg gactggcggt gttgtcgctt ccgctgggtg cgacgctggt tatgtaccgc 1020
 gaatttacgc tgtttgacgc gcagatgacg caacacgcgc tgattgccta ttctttcggt 1080
 ttaatcggtc taatcatgat taaagtgttg gcacccggct tctatgcgcg gcaaaacatc 1140
 aaaacgccc tcaaaatcgc catcttcacg ctcatctgca cgcagttgat gaaccttgcc 1200
 tttatcggcc cactgaaaca cgtcggactt tcgcttgcca tcggtctggg cgcgtgtatc 1260
 aatgccggat tgttgtttta cctgttgccg agacacggta tttaccaacc tggcaagggt 1320
 tgggcagcgt tcttagcaaa aatgctgctc tcgctcgccg tgatgtgcgg cggactgtgg 1380
 gcagcgcagg cttacctgcc gtttgaatgg gcgcacgcgc gcggaatgcg gaaagcgggg 1440
 cagctctgca tctcgattgc cgtcggcggc ggactgtatt tcgcatcact ggcggccttg 1500
 ggcttcgctc cgcgccattt caaacgcgtg gaaaactga 1539

<210> 116
 <211> 512
 <212> PRT
 <213> Neisseria meningitidis

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 20 25 30
 Gly Ala Gly Met Ala Thr Asp Ala Phe Phe Val Ala Phe Lys Leu Pro
 35 40 45
 Asn Leu Leu Arg Arg Val Phe Ala Glu Gly Ala Phe Ala Gln Ala Phe
 50 55 60

Val	Pro	Ile	Leu	Ala	Glu	Tyr	Lys	Glu	Thr	Arg	Ser	Lys	Glu	Ala	Ala	
65					70					75					80	
Glu	Ala	Phe	Ile	Arg	His	Val	Ala	Gly	Met	Leu	Ser	Phe	Val	Leu	Val	
			85						90					95		
Ile	Val	Thr	Ala	Leu	Gly	Ile	Leu	Ala	Ala	Pro	Trp	Val	Ile	Tyr	Val	
			100						105					110		
Ser	Ala	Pro	Gly	Phe	Ala	Gln	Asp	Ala	Asp	Lys	Phe	Gln	Leu	Ser	Ile	
		115					120					125				
Asp	Leu	Leu	Arg	Ile	Thr	Phe	Pro	Tyr	Ile	Leu	Leu	Ile	Ser	Leu	Ser	
	130					135						140				
Ser	Phe	Val	Gly	Ser	Val	Leu	Asn	Ser	Tyr	His	Lys	Phe	Gly	Ile	Pro	
145					150					155					160	
Ala	Phe	Thr	Pro	Thr	Phe	Leu	Asn	Val	Ser	Phe	Ile	Val	Phe	Ala	Leu	
				165					170					175		
Phe	Phe	Val	Pro	Tyr	Phe	Asp	Pro	Pro	Val	Thr	Ala	Leu	Ala	Trp	Ala	
			180					185						190		
Val	Phe	Val	Gly	Gly	Ile	Leu	Gln	Leu	Gly	Phe	Gln	Leu	Pro	Trp	Leu	
		195					200						205			
Ala	Lys	Leu	Gly	Phe	Leu	Lys	Leu	Pro	Lys	Leu	Ser	Phe	Lys	Asp	Ala	
	210					215					220					
Ala	Val	Asn	Arg	Val	Met	Lys	Gln	Met	Ala	Pro	Ala	Ile	Leu	Gly	Val	
225					230					235					240	
Ser	Val	Ala	Gln	Val	Ser	Leu	Val	Ile	Asn	Thr	Ile	Phe	Ala	Ser	Tyr	
			245						250					255		
Leu	Gln	Ser	Gly	Ser	Val	Ser	Trp	Met	Tyr	Tyr	Ala	Asp	Arg	Met	Met	
		260						265					270			
Glu	Leu	Pro	Ser	Gly	Val	Leu	Gly	Ala	Ala	Leu	Gly	Thr	Ile	Leu	Leu	
		275					280					285				
Pro	Thr	Leu	Ser	Lys	His	Ser	Ala	Asn	Gln	Asp	Thr	Glu	Gln	Phe	Ser	
	290					295					300					
Ala	Leu	Leu	Asp	Trp	Gly	Leu	Arg	Leu	Cys	Met	Leu	Leu	Thr	Leu	Pro	
305					310					315					320	
Ala	Ala	Val	Gly	Leu	Ala	Val	Leu	Ser	Phe	Pro	Leu	Val	Ala	Thr	Leu	
			325						330					335		
Phe	Met	Tyr	Arg	Glu	Phe	Thr	Leu	Phe	Asp	Ala	Gln	Met	Thr	Gln	His	
		340						345					350			
Ala	Leu	Ile	Ala	Tyr	Ser	Phe	Gly	Leu	Ile	Gly	Leu	Ile	Met	Ile	Lys	
		355					360					365				

Val Leu Ala Pro Gly Phe Tyr Ala Arg Gln Asn Ile Lys Thr Pro Val
 370 375 380
 Lys Ile Ala Ile Phe Thr Leu Ile Cys Thr Gln Leu Met Asn Leu Ala
 385 390 395 400
 Phe Ile Gly Pro Leu Lys His Val Gly Leu Ser Leu Ala Ile Gly Leu
 405 410 415
 Gly Ala Cys Ile Asn Ala Gly Leu Leu Phe Tyr Leu Leu Arg Arg His
 420 425 430
 Gly Ile Tyr Gln Pro Gly Lys Gly Trp Ala Ala Phe Leu Ala Lys Met
 435 440 445
 Leu Leu Ser Leu Ala Val Met Cys Gly Gly Leu Trp Ala Ala Gln Ala
 450 455 460
 Tyr Leu Pro Phe Glu Trp Ala His Ala Gly Gly Met Arg Lys Ala Gly
 465 470 475 480
 Gln Leu Cys Ile Leu Ile Ala Val Gly Gly Gly Leu Tyr Phe Ala Ser
 485 490 495
 Leu Ala Ala Leu Gly Phe Arg Pro Arg His Phe Lys Arg Val Glu Asn
 500 505 510

<210> 117
 <211> 1539
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (937)..(937)
 <223> N= Unknown

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 ttctttgtcg cgttcaaact gcccaacctg cttcgccgcg tgtttgcgga gggggcgttt 180
 gcccaagcgt ttgtgccgat tttggcggaa tataaggaaa cgcgttctaa agaggcgacg 240
 gaggctttta tccgccatgt ggcggggatg ctgtcgtttg tactgggtcat cgttaccgcg 300
 ctgggcatac ttgccgcgcc ttgggtgatt tatgtttccg cacccggttt tgccaaagat 360
 gccgacaaat ttcagctctc tatcgatttg ctgcggatta cgtttcctta tatcttattg 420
 atttcacttt cctctttttg cggtcggta ctcaattcct atcataaatt cagcattcct 480
 gcgtttacgc ccacgttcct gaacgtgtcg tttatcgat tgcgcgtggt ttctgtgccg 540
 tatttcgate ctcccgttac cgcgctggct tgggcgggtt ttgtcggcgg catttttgcaa 600
 ctcggtcttc aactgccctg gctggcgaaa ctgggttttt tgaaactgcc caaactgagt 660
 ttcaaagatg cggcgggtcaa ccgcgtgatg aaacagatgg cgcctgcgat tttgggcgtg 720
 agcgtggcgc agattttcttt ggtgatcaac acgattttcg cgtcttatct gcaatcgggc 780
 agcgtttcat ggatgtatta cgccgaccgc atgatggaac tgcccggcgg cgtgctgggg 840
 gcggcactcg gtacgatttt gctgcccact ttgtccaaac actcggcaaa ccaagatacg 900
 gaacagtttt ccgccctgct cgactggggg ttgcgcntgt gcatgctgct gacgctgccg 960
 gcggcggtcg gaatggcggt gttgtcggtt ccgctgggtg caaccttggt tatgtaccga 1020
 gaattcacgc tgtttgacgc gcagatgacg caacacgcgc tgattgccta ttctttcggt 1080

ttaatcggtt	taatcatgat	taaagtgttg	gcgcccgggt	tttatgcgcg	gcaaaacatc	1140
aaaacgccc	tcaaaatcgc	catcttcacg	ctcatttgca	cgcagttgat	gaaccttgcc	1200
tttatcgcc	cactgaaaca	cgtcggactt	tcgcttgcca	tcggtctggg	cgcgtgtatc	1260
aatgcccgat	tgttgtttta	cctgttgccg	agacacggta	tttaccacc	tggcaagggt	1320
tgggcagcgt	tcttggaaca	aatgctgctc	tcgctcgccg	tgatgggagg	cggcctgtat	1380
gccgcccaca	tctggctgcc	gttcgactgg	gcacacgccc	gcggaatgca	aaaggccgcc	1440
cggctcttca	tcctgattgc	cgtcggcgcc	ggactgtatt	tcgcatcact	ggcggctttg	1500
ggcttcgcgc	cgcgccattt	caaacgcgtg	gaaagctga			1539

<210> 118
 <211> 512
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <223> Xaa= any amino acid

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 20 25 30
 Gly Ala Gly Met Ala Thr Asp Ala Phe Phe Val Ala Phe Lys Leu Pro
 35 40 45
 Asn Leu Leu Arg Arg Val Phe Ala Glu Gly Ala Phe Ala Gln Ala Phe
 50 55 60
 Val Pro Ile Leu Ala Glu Tyr Lys Glu Thr Arg Ser Lys Glu Ala Thr
 65 70 75 80
 Glu Ala Phe Ile Arg His Val Ala Gly Met Leu Ser Phe Val Leu Val
 85 90 95
 Ile Val Thr Ala Leu Gly Ile Leu Ala Ala Pro Trp Val Ile Tyr Val
 100 105 110
 Ser Ala Pro Gly Phe Ala Lys Asp Ala Asp Lys Phe Gln Leu Ser Ile
 115 120 125
 Asp Leu Leu Arg Ile Thr Phe Pro Tyr Ile Leu Leu Ile Ser Leu Ser
 130 135 140
 Ser Phe Val Gly Ser Val Leu Asn Ser Tyr His Lys Phe Ser Ile Pro
 145 150 155 160
 Ala Phe Thr Pro Thr Phe Leu Asn Val Ser Phe Ile Val Phe Ala Leu
 165 170 175
 Phe Phe Val Pro Tyr Phe Asp Pro Pro Val Thr Ala Leu Ala Trp Ala
 180 185 190

Val	Phe	Val	Gly	Gly	Ile	Leu	Gln	Leu	Gly	Phe	Gln	Leu	Pro	Trp	Leu	195	200	205
Ala	Lys	Leu	Gly	Phe	Leu	Lys	Leu	Pro	Lys	Leu	Ser	Phe	Lys	Asp	Ala	210	215	220
Ala	Val	Asn	Arg	Val	Met	Lys	Gln	Met	Ala	Pro	Ala	Ile	Leu	Gly	Val	225	230	235
Ser	Val	Ala	Gln	Ile	Ser	Leu	Val	Ile	Asn	Thr	Ile	Phe	Ala	Ser	Tyr	245	250	255
Leu	Gln	Ser	Gly	Ser	Val	Ser	Trp	Met	Tyr	Tyr	Ala	Asp	Arg	Met	Met	260	265	270
Glu	Leu	Pro	Gly	Gly	Val	Leu	Gly	Ala	Ala	Leu	Gly	Thr	Ile	Leu	Leu	275	280	285
Pro	Thr	Leu	Ser	Lys	His	Ser	Ala	Asn	Gln	Asp	Thr	Glu	Gln	Phe	Ser	290	295	300
Ala	Leu	Leu	Asp	Trp	Gly	Leu	Arg	Xaa	Cys	Met	Leu	Leu	Thr	Leu	Pro	305	310	315
Ala	Ala	Val	Gly	Met	Ala	Val	Leu	Ser	Phe	Pro	Leu	Val	Ala	Thr	Leu	325	330	335
Phe	Met	Tyr	Arg	Glu	Phe	Thr	Leu	Phe	Asp	Ala	Gln	Met	Thr	Gln	His	340	345	350
Ala	Leu	Ile	Ala	Tyr	Ser	Phe	Gly	Leu	Ile	Gly	Leu	Ile	Met	Ile	Lys	355	360	365
Val	Leu	Ala	Pro	Gly	Phe	Tyr	Ala	Arg	Gln	Asn	Ile	Lys	Thr	Pro	Val	370	375	380
Lys	Ile	Ala	Ile	Phe	Thr	Leu	Ile	Cys	Thr	Gln	Leu	Met	Asn	Leu	Ala	385	390	395
Phe	Ile	Gly	Pro	Leu	Lys	His	Val	Gly	Leu	Ser	Leu	Ala	Ile	Gly	Leu	405	410	415
Gly	Ala	Cys	Ile	Asn	Ala	Gly	Leu	Leu	Phe	Tyr	Leu	Leu	Arg	Arg	His	420	425	430
Gly	Ile	Tyr	Gln	Pro	Gly	Lys	Gly	Trp	Ala	Ala	Phe	Leu	Ala	Lys	Met	435	440	445
Leu	Leu	Ser	Leu	Ala	Val	Met	Gly	Gly	Gly	Leu	Tyr	Ala	Ala	Gln	Ile	450	455	460
Trp	Leu	Pro	Phe	Asp	Trp	Ala	His	Ala	Gly	Gly	Met	Gln	Lys	Ala	Ala	465	470	475
Arg	Leu	Phe	Ile	Leu	Ile	Ala	Val	Gly	Gly	Gly	Leu	Tyr	Phe	Ala	Ser	485	490	495

Leu Ala Ala Leu Gly Phe Arg Pro Arg His Phe Lys Arg Val Glu Ser
500 505 510

<210> 119
<211> 8
<212> DNA
<213> Neisseria gonorrhoeae

<220>
<221> misc_feature
<222> (1)..(8)
<223> N= Unknown

<400> 119
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8

<210> 120
<211> 454
<212> PRT
<213> Neisseria gonorrhoeae

<400> 120
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20 25 30
Gly Ala Gly Met Ala Thr Asp Ala Phe Phe Val Ala Phe Lys Leu Pro
35 40 45
Asn Leu Leu Arg Arg Val Phe Ala Glu Gly Ala Phe Ala Gln Ala Phe
50 55 60
Val Pro Ile Leu Ala Glu Tyr Lys Glu Thr Arg Ser Lys Glu Ala Thr
65 70 75 80
Glu Ala Phe Ile Arg His Val Ala Gly Met Leu Ser Phe Val Leu Ile
85 90 95
Val Val Thr Ala Leu Gly Ile Leu Ala Ala Pro Trp Val Ile Tyr Val
100 105 110
Ser Ala Pro Gly Phe Thr Lys Asp Ala Asp Lys Phe Gln Leu Ser Ile
115 120 125
Ser Leu Leu Arg Ile Thr Phe Pro Tyr Ile Leu Leu Ile Ser Leu Ser
130 135 140
Ser Phe Val Gly Ser Ile Leu Asn Ser Tyr His Lys Phe Gly Ile Pro
145 150 155 160
Ala Phe Thr Pro Thr Phe Leu Asn Ile Ser Phe Ile Val Phe Ala Leu
165 170 175
Phe Phe Val Pro Tyr Phe Asp Pro Pro Val Thr Ala Leu Ala Trp Ala

180					185					190						
Val	Phe	Val	Gly	Gly	Ile	Leu	Gln	Leu	Gly	Phe	Gln	Leu	Pro	Trp	Leu	
195					200					205						
Ala	Lys	Leu	Gly	Phe	Leu	Lys	Leu	Pro	Lys	Leu	Asn	Phe	Lys	Asp	Ala	
210					215					220						
Ala	Val	Asn	Arg	Val	Met	Lys	Gln	Met	Ala	Pro	Ala	Ile	Leu	Gly	Val	
225					230					235					240	
Ser	Val	Ala	Gln	Ile	Ser	Leu	Val	Ile	Asn	Thr	Ile	Phe	Ala	Ser	Tyr	
245					250					255						
Leu	Gln	Ser	Gly	Ser	Val	Ser	Trp	Met	Tyr	Tyr	Ala	Asp	Arg	Met	Met	
260					265					270						
Glu	Leu	Pro	Gly	Gly	Val	Leu	Gly	Ala	Ala	Leu	Gly	Thr	Ile	Leu	Leu	
275					280					285						
Pro	Thr	Leu	Ser	Lys	His	Ser	Ala	Asn	Gln	Asp	Thr	Glu	Gln	Phe	Ser	
290					295					300						
Ala	Leu	Leu	Asp	Trp	Gly	Leu	Arg	Leu	Cys	Met	Leu	Leu	Thr	Leu	Pro	
305					310					315					320	
Ala	Ala	Ala	Gly	Leu	Ala	Val	Leu	Ser	Phe	Pro	Leu	Val	Ala	Thr	Leu	
325					330					335						
Phe	Met	Tyr	Arg	Glu	Phe	Thr	Leu	Phe	Asp	Ala	Gln	Met	Thr	Gln	His	
340					345					350						
Ala	Leu	Ile	Ala	Tyr	Ser	Phe	Gly	Leu	Ile	Gly	Leu	Ile	Met	Ile	Lys	
355					360					365						
Val	Leu	Ala	Ser	Gly	Phe	Tyr	Ala	Arg	Gln	Asn	Ile	Lys	Thr	Pro	Val	
370					375					380						
Lys	Ile	Ala	Ile	Phe	Thr	Leu	Ile	Cys	Thr	Gln	Leu	Met	Asn	Leu	Ala	
385					390					395					400	
Phe	Ile	Gly	Pro	Leu	Lys	His	Ala	Gly	Leu	Ser	Leu	Ala	Ile	Gly	Leu	
405					410					415						
Gly	Ala	Cys	Ile	Asn	Ala	Gly	Leu	Leu	Phe	Phe	Leu	Phe	Arg	Lys	His	
420					425					430						
Gly	Ile	Tyr	Arg	Pro	Gly	Gln	Gly	Leu	Gly	Gln	Pro	Ser	Trp	Arg	Lys	
435					440					445						
Cys	Cys	Ser	Arg	Ser	Pro											
450																

<210> 121
 <211> 1539
 <212> DNA

<213> Neisseria gonorrhoeae

<400> 121

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ggattttgtgc	gcgatacggg	cattgcgcgg	gcattcggcg	cgggtatggc	gacggatgcg	120
ttttttgtcg	cgttcaaaact	gccaacactg	cttcgcgcgg	tgtttgcgga	gggggctgtt	180
gccaagcgt	ttgtgccgat	tttggcgga	tataaggaaa	cgcgttctaa	agaggcgacg	240
gaggctttta	tccgccacgt	tgcgggaatg	ctgtcgtttg	tgctgatcgt	cgttaccgcg	300
ctgggcatac	ttgccgcgcc	ttgggtgatt	tatgtttccg	cgcccggtt	taccaaagac	360
gcggacaagt	tccaactttc	catcagcctg	ctgcggatta	cgtttcctta	tatattattg	420
atttctttgt	cttcttttgt	cggctcgata	ctcaattcct	accataagtt	cggcattccc	480
gcgtttacgc	ccacgttttt	aaacatctct	tttatcgat	tcgcactgtt	tttcgtgccg	540
tatttcgatc	cgcccggtac	cgcgctggcg	tgggcgggtt	ttgtcggcgg	tattttgcag	600
ctcgggtttcc	aactgccgtg	gctggcgaaa	ctgggctttt	tgaaactgcc	caaactgaat	660
ttcaaagatg	cggcggtcaa	ccgcgtcatg	aaacagatgg	cgcttgcgat	tttgggcgtg	720
agcgtggcgc	aaatttcttt	ggttatcaac	acgattttcg	cgtcttatct	gcaatcgggc	780
agcgtttcat	ggatgtatta	cgccgaccgc	atgatggagc	tgcgccgggg	cgtgctgggg	840
gctgcactcg	gtacaatttt	gctgccgact	ttgtccaaac	actcgcaaaa	ccaagatacg	900
gaacagtttt	ccgcctgtct	cgactggggg	ttgcgcctgt	gcagtgtgct	gacgctgccg	960
gcggcgccgc	gactggcggt	attgtcggtc	ccgctgggtg	cgacgctgtt	tatgtaccga	1020
gaattcacgc	tgtttgacgc	acaaatgacg	caacacgcgc	tgattgccta	ttctttcggt	1080
ttaatcggtt	taattatgat	taaagtgttg	gcatccggct	tttatgcgcg	gcaaaacatc	1140
aaaacgccc	tcaaaatcgc	catcttcacg	ctcatctgca	cgcagttgat	gaacctcgcc	1200
tttatcggtc	cgttgaaaca	cgccgggctt	tcgctcgcca	tcggcctggg	cgcgctgcac	1260
aacgccggat	tgttgttctt	cctgttgcg	aaacacggta	tttaccggcc	cggcaggggt	1320
tgggcggcgt	tcttggcgaa	aatgctgctc	gcgctcgccg	tgatgtgcgg	cggactgtgg	1380
gcggcgagc	cttgccctgcc	gttcgaatgg	gcgcacgccg	gcggaatgcg	gaaagcgggg	1440
cagctctgca	tcctgattgc	cgtcggcgcc	ggactgtatt	tcgcatctct	ggcggctttg	1500
ggcttccgtc	cgccgccattt	caaacgcgtg	gaaagctga			1539

<210> 122

<211> 512

<212> PRT

<213> Neisseria gonorrhoeae

<400> 122

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Ser Arg Val	Leu Gly Phe	Val Arg Asp	Thr Val Ile	Ala Arg Ala	Phe
20	25	30			
Gly Ala Gly	Met Ala Thr	Asp Ala Phe	Phe Val Ala	Phe Lys Leu	Pro
35	40	45			
Asn Leu Leu	Arg Arg Val	Phe Ala Glu	Gly Ala Phe	Ala Gln Ala	Phe
50	55	60			
Val Pro Ile	Leu Ala Glu	Tyr Lys Glu	Thr Arg Ser	Lys Glu Ala	Thr
65	70	75	80		
Glu Ala Phe	Ile Arg His	Val Ala Gly	Met Leu Ser	Phe Val Leu	Ile
85	90	95			
Val Val Thr	Ala Leu Gly	Ile Leu Ala	Ala Pro Trp	Val Ile Tyr	Val
100	105	110			

Ser	Ala	Pro	Gly	Phe	Thr	Lys	Asp	Ala	Asp	Lys	Phe	Gln	Leu	Ser	Ile	115	120	125
Ser	Leu	Leu	Arg	Ile	Thr	Phe	Pro	Tyr	Ile	Leu	Leu	Ile	Ser	Leu	Ser	130	135	140
Ser	Phe	Val	Gly	Ser	Ile	Leu	Asn	Ser	Tyr	His	Lys	Phe	Gly	Ile	Pro	145	150	155
Ala	Phe	Thr	Pro	Thr	Phe	Leu	Asn	Ile	Ser	Phe	Ile	Val	Phe	Ala	Leu	165	170	175
Phe	Phe	Val	Pro	Tyr	Phe	Asp	Pro	Pro	Val	Thr	Ala	Leu	Ala	Trp	Ala	180	185	190
Val	Phe	Val	Gly	Gly	Ile	Leu	Gln	Leu	Gly	Phe	Gln	Leu	Pro	Trp	Leu	195	200	205
Ala	Lys	Leu	Gly	Phe	Leu	Lys	Leu	Pro	Lys	Leu	Asn	Phe	Lys	Asp	Ala	210	215	220
Ala	Val	Asn	Arg	Val	Met	Lys	Gln	Met	Ala	Pro	Ala	Ile	Leu	Gly	Val	225	230	235
Ser	Val	Ala	Gln	Ile	Ser	Leu	Val	Ile	Asn	Thr	Ile	Phe	Ala	Ser	Tyr	245	250	255
Leu	Gln	Ser	Gly	Ser	Val	Ser	Trp	Met	Tyr	Tyr	Ala	Asp	Arg	Met	Met	260	265	270
Glu	Leu	Arg	Arg	Gly	Val	Leu	Gly	Ala	Ala	Leu	Gly	Thr	Ile	Leu	Leu	275	280	285
Pro	Thr	Leu	Ser	Lys	His	Ser	Ala	Asn	Gln	Asp	Thr	Glu	Gln	Phe	Ser	290	295	300
Ala	Leu	Leu	Asp	Trp	Gly	Leu	Arg	Leu	Cys	Met	Leu	Leu	Thr	Leu	Pro	305	310	315
Ala	Ala	Ala	Gly	Leu	Ala	Val	Leu	Ser	Phe	Pro	Leu	Val	Ala	Thr	Leu	325	330	335
Phe	Met	Tyr	Arg	Glu	Phe	Thr	Leu	Phe	Asp	Ala	Gln	Met	Thr	Gln	His	340	345	350
Ala	Leu	Ile	Ala	Tyr	Ser	Phe	Gly	Leu	Ile	Gly	Leu	Ile	Met	Ile	Lys	355	360	365
Val	Leu	Ala	Ser	Gly	Phe	Tyr	Ala	Arg	Gln	Asn	Ile	Lys	Thr	Pro	Val	370	375	380
Lys	Ile	Ala	Ile	Phe	Thr	Leu	Ile	Cys	Thr	Gln	Leu	Met	Asn	Leu	Ala	385	390	395
Phe	Ile	Gly	Pro	Leu	Lys	His	Ala	Gly	Leu	Ser	Leu	Ala	Ile	Gly	Leu	405	410	415

Gly Ala Cys Ile Asn Ala Gly Leu Leu Phe Phe Leu Leu Arg Lys His
 420 425 430

Gly Ile Tyr Arg Pro Gly Arg Gly Trp Ala Ala Phe Leu Ala Lys Met
 435 440 445

Leu Leu Ala Leu Ala Val Met Cys Gly Gly Leu Trp Ala Ala Gln Ala
 450 455 460

Cys Leu Pro Phe Glu Trp Ala His Ala Gly Gly Met Arg Lys Ala Gly
 465 470 475 480

Gln Leu Cys Ile Leu Ile Ala Val Gly Gly Gly Leu Tyr Phe Ala Ser
 485 490 495

Leu Ala Ala Leu Gly Phe Arg Pro Arg His Phe Lys Arg Val Glu Ser
 500 505 510

<210> 123
 <211> 474
 <212> DNA
 <213> Neisseria meningitidis

<400> 123
 atgattaaaa tcaaaaaagg tctaaacctg cccatcgcg gacagaccgga gcaagccggt 60
 tacgacggcc cggccattac cgaagtcgcg ttgcttggcg aagaatatgc cggatatgcg 120
 ccctcgatga aagtcaagga aggcgatgcc gtcaaaaaag gccaatgct gtttgaagac 180
 aaaaagaatc cgggcgtggt gtttactgcg ccggcttcag gcaaaatcgc cgcgattcac 240
 cgtggcgaaa agcgcgtact tcagtcagtc gtgattgccg ttgaargcaa cgacgaaatc 300
 gagtttgaac gctacgcacc tgaagcgctg gcaaacttaa gcggcgaaaga agtgcgccgc 360
 aacctgatcc aatccgggtt gtggactgcg ctgcgcaccc gtccggttcag caaaattcct 420
 gccgctgatg ccgagccggt cgccatcttc gtcaatgcga tggacaccaa tccg 474

<210> 124
 <211> 158
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (96)..(96)
 <223> Xaa= any amino acid

<400> 124
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 Glu Gln Ala Val Tyr Asp Gly Pro Ala Ile Thr Glu Val Ala Leu Leu
 20 25 30
 Gly Glu Glu Tyr Ala Gly Met Arg Pro Ser Met Lys Val Lys Glu Gly
 35 40 45
 Asp Ala Val Lys Lys Gly Gln Val Leu Phe Glu Asp Lys Lys Asn Pro
 50 55 60

Gly Val Val Phe Thr Ala Pro Ala Ser Gly Lys Ile Ala Ala Ile His
65 70 75 80

Arg Gly Glu Lys Arg Val Leu Gln Ser Val Val Ile Ala Val Glu Xaa
85 90 95

Asn Asp Glu Ile Glu Phe Glu Arg Tyr Ala Pro Glu Ala Leu Ala Asn
100 105 110

Leu Ser Gly Glu Glu Val Arg Arg Asn Leu Ile Gln Ser Gly Leu Trp
115 120 125

Thr Ala Leu Arg Thr Arg Pro Phe Ser Lys Ile Pro Ala Val Asp Ala
130 135 140

Glu Pro Phe Ala Ile Phe Val Asn Ala Met Asp Thr Asn Pro
145 150 155

<210> 125

<211> 1344

<212> DNA

<213> Neisseria meningitidis

<400> 125

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ccctcgatga	aagtcaagga	aggcgatgcc	gtcaaaaaag	gccaagtgt	gtttgaagac	180
aaaaagaatc	cgggcgtggt	gtttactg	ccggcttcag	gcaaaatcg	cgcgattcac	240
cgtggcgaaa	agcgcgtact	tcagtcagtc	gtgattgccg	ttgaaggcaa	cgacgaaatc	300
gagtttgaac	gctacgcacc	tgaagcgctg	gcaaacttaa	gcggcgaaga	agtgcgcgcg	360
aacctgatcc	aatccggttt	gtggactg	ctgcgcaccc	gtccgttcag	caaaattcct	420
gccgtcgatg	ccgagccggt	cgccatcttc	gtcaatgcga	tggacaccaa	tccgctgggt	480
gccgacccta	cggtcattat	caaagaagcc	gccgaggatt	tcaaacgcgg	cctgttggtg	540
ttgagccggt	tgaccgaacg	caaaatccat	gtttgtaagg	cagctggcgc	agacgtgcgc	600
tctgaaaatg	ctgccaacat	cgaaacacat	gaattcggcg	gcccgcaccc	tgccgggttg	660
agtggcacgc	acattcattt	catcgagccg	gtcggcgcg	ataaaaccgt	gtggaccatc	720
aattatcaag	atgtaattac	cattggccgt	ttgtttgcaa	caggccgtct	gaacaccgag	780
cgcgtgattg	ccctaggtgg	ttctcaagtc	aacaaaccgc	gcctcttgcg	taccgttttg	840
ggtgcgaaag	tatcgcaa	tactgcgggc	gaattgggtg	acacagacaa	ccgcgtgatt	900
tccggttcgg	tattgaacgg	cgcgattaca	caaggcgcg	acgattattt	gggacgctac	960
cacaatcaga	tttccgttat	cgaagaaggc	cgcagcaaag	agctgttcgg	ctgggttgcg	1020
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ctcttcaagt	tcaacacagc	cgtcaacggc	ggcgaccg	ccatgggtgc	gattgggtact	1140
tacgagcgcg	tgatgccctt	ggatatcctg	cccaccctgc	ttttgcgcga	tttaatcgtc	1200
ggcgataccg	acagcgcgca	ggcattgggt	tgcttggaat	tggacgaaga	agacctcgct	1260
ttgtgcagct	tcgtctgccc	gggcaaatac	gaatacggcc	cgctgttgcg	caaagtgcgt	1320
gaaaccattg	agaaggaagg	ctga				1344

<210> 126

<211> 447

<212> PRT

<213> Neisseria meningitidis

<400> 126

Met Ile Lys Ile Lys Lys Gly Leu Asn Leu Pro Ile Ala Gly Arg Pro
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Glu	Gln	Ala	Val	Tyr	Asp	Gly	Pro	Ala	Ile	Thr	Glu	Val	Ala	Leu	Leu	20	25	30
Gly	Glu	Glu	Tyr	Ala	Gly	Met	Arg	Pro	Ser	Met	Lys	Val	Lys	Glu	Gly	35	40	45
Asp	Ala	Val	Lys	Lys	Gly	Gln	Val	Leu	Phe	Glu	Asp	Lys	Lys	Asn	Pro	50	55	60
Gly	Val	Val	Phe	Thr	Ala	Pro	Ala	Ser	Gly	Lys	Ile	Ala	Ala	Ile	His	65	70	75
Arg	Gly	Glu	Lys	Arg	Val	Leu	Gln	Ser	Val	Val	Ile	Ala	Val	Glu	Gly	85	90	95
Asn	Asp	Glu	Ile	Glu	Phe	Glu	Arg	Tyr	Ala	Pro	Glu	Ala	Leu	Ala	Asn	100	105	110
Leu	Ser	Gly	Glu	Glu	Val	Arg	Arg	Asn	Leu	Ile	Gln	Ser	Gly	Leu	Trp	115	120	125
Thr	Ala	Leu	Arg	Thr	Arg	Pro	Phe	Ser	Lys	Ile	Pro	Ala	Val	Asp	Ala	130	135	140
Glu	Pro	Phe	Ala	Ile	Phe	Val	Asn	Ala	Met	Asp	Thr	Asn	Pro	Leu	Ala	145	150	155
Ala	Asp	Pro	Thr	Val	Ile	Ile	Lys	Glu	Ala	Ala	Glu	Asp	Phe	Lys	Arg	165	170	175
Gly	Leu	Leu	Val	Leu	Ser	Arg	Leu	Thr	Glu	Arg	Lys	Ile	His	Val	Cys	180	185	190
Lys	Ala	Ala	Gly	Ala	Asp	Val	Pro	Ser	Glu	Asn	Ala	Ala	Asn	Ile	Glu	195	200	205
Thr	His	Glu	Phe	Gly	Gly	Pro	His	Pro	Ala	Gly	Leu	Ser	Gly	Thr	His	210	215	220
Ile	His	Phe	Ile	Glu	Pro	Val	Gly	Ala	Asn	Lys	Thr	Val	Trp	Thr	Ile	225	230	235
Asn	Tyr	Gln	Asp	Val	Ile	Thr	Ile	Gly	Arg	Leu	Phe	Ala	Thr	Gly	Arg	245	250	255
Leu	Asn	Thr	Glu	Arg	Val	Ile	Ala	Leu	Gly	Gly	Ser	Gln	Val	Asn	Lys	260	265	270
Pro	Arg	Leu	Leu	Arg	Thr	Val	Leu	Gly	Ala	Lys	Val	Ser	Gln	Ile	Thr	275	280	285
Ala	Gly	Glu	Leu	Val	Asp	Thr	Asp	Asn	Arg	Val	Ile	Ser	Gly	Ser	Val	290	295	300
Leu	Asn	Gly	Ala	Ile	Thr	Gln	Gly	Ala	His	Asp	Tyr	Leu	Gly	Arg	Tyr	305	310	315
																		320

His Asn Gln Ile Ser Val Ile Glu Glu Gly Arg Ser Lys Glu Leu Phe
 325 330 335
 Gly Trp Val Ala Pro Gln Pro Asp Lys Tyr Ser Ile Thr Arg Thr Thr
 340 345 350
 Leu Gly His Phe Leu Lys Asn Lys Leu Phe Lys Phe Asn Thr Ala Val
 355 360 365
 Asn Gly Gly Asp Arg Ala Met Val Pro Ile Gly Thr Tyr Glu Arg Val
 370 375 380
 Met Pro Leu Asp Ile Leu Pro Thr Leu Leu Leu Arg Asp Leu Ile Val
 385 390 395 400
 Gly Asp Thr Asp Ser Ala Gln Ala Leu Gly Cys Leu Glu Leu Asp Glu
 405 410 415
 Glu Asp Leu Ala Leu Cys Ser Phe Val Cys Pro Gly Lys Tyr Glu Tyr
 420 425 430
 Gly Pro Leu Leu Arg Lys Val Leu Glu Thr Ile Glu Lys Glu Gly
 435 440 445

<210> 127
 <211> 1344
 <212> DNA
 <213> Neisseria meningitidis

<220>
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<220>
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 <222> (187)..(187)
 <223> N= Unknown

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 <222> (213)..(213)
 <223> N= Unknown

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 <222> (348)..(348)
 <223> N= Unknown

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 <223> N= Unknown

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<222> (354)..(355)

<223> N= Unknown

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<222> (357)..(358)

<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

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<222> (1327)..(1327)

<223> N= Unknown

<400> 127

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ccctngatga	aagtcaagga	aggcgatgcc	gtcaaaaaag	gccaaagtgc	gtttgaagac	180
aaaaagnatc	cgggcggtgg	gtttaccg	cnngtttcag	gcaaaatcgc	cgccatccat	240
cgcggcgaaa	agcgcgtact	tcagtcggtc	gtgattgccg	ttgaaggcaa	cgacgaaatc	300
gagttcgaac	gctacgcgcc	cgaagcggtg	gcaaaactta	gcggcganga	antnngnngc	360
aatctgatcc	aatccggttt	gtggactg	ctgcgtancc	gtccgttcag	caaaatccct	420

gccgtcgatg	ccgagccggt	cgccatcttc	gtcaatgcga	tggacaccaa	tccgctngcg	480
gcagaccctg	tggttgtgat	caaagaagcc	gncgangatt	tcagacgang	tntgctggta	540
ttgagccggt	tgaccgagcg	taaaatccat	gtgtgtaaag	cagctggcgc	agacgtgccg	600
tctgaaaatg	ctgccaacat	cgaaacacat	gaattcggcg	gcccgcaccc	ggccgggttg	660
agtggcacgc	acattcattt	cattgagccg	gtcgggtgcaa	acaaaaccgt	ttggaccatc	720
aattatcaag	atgtaattgc	catcggacgt	ttgtttgcaa	caggccgtct	gaacaccgag	780
cgcgtgattg	ctttgggtgg	ttctcaagtc	aacaaaccac	gcctcttgcg	taccgttttg	840
ggtgcgaaag	tatcgcaaat	tactgcgggc	gaattgggtg	acgcagacaa	ccgcgtgatt	900
tccggttcgg	tattgaacgg	cgcgattaca	caaggcgcgc	acgattatct	gggacgctac	960
cacaatcaga	tttccgttat	cgaagaaggc	cgcagcaaag	agctgttcgg	ctgggttgcg	1020
ccgcagccgg	acaaatactc	catcacgcgt	acgaccctcg	gccatttcct	gaaaaacaaa	1080
ctcttcaagt	tcacgacagc	cgtcaacggg	ggcgaccgcg	ccatggtgcc	gattgggtact	1140
tacgagcgcg	taatgccgct	agacatcctg	cctaccctgc	ttttgcgcga	tttaatcgtc	1200
ggcgataccg	acagcgcgca	agcattgggt	tgcttggaat	tggacgaaga	agacctcgct	1260
ttgtgcagct	tcgtctgccc	gggcaaatac	gaatanggcc	cgctgttgcg	taaggtgctg	1320
gaaaccnttg	agaaggaagg	ctga				1344

<210> 128
 <211> 447
 <212> PRT
 <213> *Neisseria meningitidis*

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 <223> Xaa= any amino acid

<220>
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 <222> (63)..(63)
 <223> Xaa= any amino acid

<220>
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 <222> (116)..(116)
 <223> Xaa= any amino acid

<220>
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 <222> (118)..(120)
 <223> Xaa= any amino acid

<220>
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 <222> (133)..(133)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (171)..(172)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (177)..(178)
 <223> Xaa= any amino acid

<220>
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<222> (432)..(432)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (443)..(443)
<223> Xaa= any amino acid

<400> 128
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20 25 30
Gly Glu Glu Tyr Ala Gly Met Arg Pro Xaa Met Lys Val Lys Glu Gly
35 40 45
Asp Ala Val Lys Lys Gly Gln Val Leu Phe Glu Asp Lys Lys Xaa Pro
50 55 60
Gly Val Val Phe Thr Ala Pro Val Ser Gly Lys Ile Ala Ala Ile His
65 70 75 80
Arg Gly Glu Lys Arg Val Leu Gln Ser Val Val Ile Ala Val Glu Gly
85 90 95
Asn Asp Glu Ile Glu Phe Glu Arg Tyr Ala Pro Glu Ala Leu Ala Asn
100 105 110
Leu Ser Gly Xaa Glu Xaa Xaa Xaa Asn Leu Ile Gln Ser Gly Leu Trp
115 120 125
Thr Ala Leu Arg Xaa Arg Pro Phe Ser Lys Ile Pro Ala Val Asp Ala
130 135 140
Glu Pro Phe Ala Ile Phe Val Asn Ala Met Asp Thr Asn Pro Leu Ala
145 150 155 160
Ala Asp Pro Val Val Val Ile Lys Glu Ala Xaa Xaa Asp Phe Arg Arg
165 170 175
Xaa Xaa Leu Val Leu Ser Arg Leu Thr Glu Arg Lys Ile His Val Cys
180 185 190
Lys Ala Ala Gly Ala Asp Val Pro Ser Glu Asn Ala Ala Asn Ile Glu
195 200 205
Thr His Glu Phe Gly Gly Pro His Pro Ala Gly Leu Ser Gly Thr His
210 215 220
Ile His Phe Ile Glu Pro Val Gly Ala Asn Lys Thr Val Trp Thr Ile
225 230 235 240

Asn Tyr Gln Asp Val Ile Ala Ile Gly Arg Leu Phe Ala Thr Gly Arg
 245 250 255
 Leu Asn Thr Glu Arg Val Ile Ala Leu Gly Gly Ser Gln Val Asn Lys
 260 265 270
 Pro Arg Leu Leu Arg Thr Val Leu Gly Ala Lys Val Ser Gln Ile Thr
 275 280 285
 Ala Gly Glu Leu Val Asp Ala Asp Asn Arg Val Ile Ser Gly Ser Val
 290 295 300
 Leu Asn Gly Ala Ile Thr Gln Gly Ala His Asp Tyr Leu Gly Arg Tyr
 305 310 315 320
 His Asn Gln Ile Ser Val Ile Glu Glu Gly Arg Ser Lys Glu Leu Phe
 325 330 335
 Gly Trp Val Ala Pro Gln Pro Asp Lys Tyr Ser Ile Thr Arg Thr Thr
 340 345 350
 Leu Gly His Phe Leu Lys Asn Lys Leu Phe Lys Phe Thr Thr Ala Val
 355 360 365
 Asn Gly Gly Asp Arg Ala Met Val Pro Ile Gly Thr Tyr Glu Arg Val
 370 375 380
 Met Pro Leu Asp Ile Leu Pro Thr Leu Leu Leu Arg Asp Leu Ile Val
 385 390 395 400
 Gly Asp Thr Asp Ser Ala Gln Ala Leu Gly Cys Leu Glu Leu Asp Glu
 405 410 415
 Glu Asp Leu Ala Leu Cys Ser Phe Val Cys Pro Gly Lys Tyr Glu Xaa
 420 425 430
 Gly Pro Leu Leu Arg Lys Val Leu Glu Thr Xaa Glu Lys Glu Gly
 435 440 445

<210> 129
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 129
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<210> 130
 <211> 322
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 130

Met	Ile	Lys	Ile	Lys	Gly	Leu	Asn	Leu	Pro	Ile	Ala	Gly	Arg	Pro	
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Glu	Gln	Val	Ile	Tyr	Asp	Gly	Pro	Ala	Ile	Thr	Glu	Val	Ala	Leu	Leu
			20					25					30		
Gly	Glu	Glu	Tyr	Val	Gly	Met	Arg	Pro	Ser	Met	Lys	Ile	Lys	Glu	Gly
		35					40					45			
Glu	Ala	Val	Lys	Lys	Gly	Gln	Val	Leu	Phe	Glu	Asp	Lys	Lys	Asn	Pro
	50					55					60				
Gly	Val	Val	Phe	Thr	Ala	Pro	Ala	Ser	Gly	Lys	Ile	Ala	Ala	Ile	His
65					70					75					80
Arg	Gly	Glu	Lys	Arg	Val	Leu	Gln	Ser	Val	Val	Ile	Ala	Val	Glu	Gly
				85					90					95	
Asn	Asp	Glu	Ile	Glu	Phe	Glu	Arg	Tyr	Val	Pro	Glu	Ala	Leu	Ala	Lys
			100					105					110		
Leu	Ser	Ser	Glu	Lys	Val	Arg	Arg	Asn	Leu	Ile	Gln	Ser	Gly	Leu	Trp
		115					120					125			
Thr	Ala	Leu	Arg	Thr	Arg	Pro	Phe	Ser	Lys	Ile	Pro	Ala	Val	Asp	Ala
	130					135					140				
Glu	Pro	Phe	Ala	Ile	Phe	Val	Asn	Ala	Met	Asp	Thr	Asn	Pro	Leu	Ala
145					150					155					160
Ala	Asp	Pro	Thr	Val	Ile	Ile	Lys	Glu	Ala	Ala	Glu	Asp	Phe	Lys	Arg
				165					170					175	
Gly	Leu	Leu	Val	Leu	Ser	Arg	Leu	Thr	Glu	Arg	Lys	Ile	His	Val	Cys
			180					185					190		
Lys	Ala	Ala	Gly	Ala	Asp	Val	Pro	Ser	Glu	Asn	Ala	Ala	Asn	Ile	Glu
	195						200					205			
Thr	His	Glu	Phe	Gly	Gly	Pro	His	Pro	Ala	Gly	Leu	Ser	Gly	Thr	His
	210					215					220				
Ile	His	Phe	Ile	Glu	Pro	Val	Gly	Ala	Asn	Lys	Thr	Val	Trp	Thr	Ile
225					230					235					240
Asn	Tyr	Gln	Asp	Val	Ile	Ala	Ile	Gly	Arg	Leu	Phe	Val	Thr	Gly	Arg
				245					250					255	
Leu	Asn	Thr	Glu	Arg	Val	Val	Ala	Leu	Gly	Gly	Leu	Gln	Val	Asn	Lys
			260					265					270		
Pro	Arg	Leu	Leu	Arg	Thr	Val	Leu	Gly	Ala	Lys	Val	Ser	Gln	Leu	Thr
		275					280					285			
Ala	Gly	Glu	Leu	Val	Asp	Ala	Asp	Asn	Arg	Val	Ile	Ser	Gly	Ser	Val

290

295

300

Leu Asn Gly Ala Ile Ala Gln Gly Ala His Asp Tyr Leu Gly Arg Tyr
 305 310 315 320

His Asn

<210> 131
 <211> 1344
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 131
 atgattaaaa tcaaaaaagg tctaaatctg cccatcgcg ggcagaccgga gcaagtcatt 60
 tatgacggcc cggccattac cgaagtcgag ttgcttggcg aagaatatgt cggcatgcgc 120
 ccctcgatga aaatcaagga aggtgaagcc gtcaaaaaag gccaaagtgt gtttgaagac 180
 aaaaagaatc cgggcgtagt atttactgag ccggcttcag gcaaaatcgc cgctattcac 240
 cgtggcgaaa agcgcgtact tcagtcagtc gtgattgccc ttgaaggcaa cgacgaaatc 300
 gagttcgaac gctacgtacc tgaagcgctg gcaaaattga gcagcgaaaa agtgcgccgc 360
 aacctgattc aatcaggctt atggactgag cttcgacccc gtccgttcag caaaatccct 420
 gccgtagatg ccgagccggt cgccatcttc gtcaatgcga tggacaccaa tccgctggct 480
 gccgacccta cggatcatcat caaagaagcc gccgaagact tcaaacgcgc cctgttggtg 540
 ttgagccgcc tgaccgaacg taaaatccat gtgtgtaaag cagcagggcg agacgtgccg 600
 tctgaaaatg ctgccaatat cgaaacacat gaatttggcg gcccgcatcc tgccggcttg 660
 agtggcacgc acattcattt catcgagcca gtcggcgcca ataaaaccgt gtggaccatc 720
 aattatcaag acgtgattgc tatcggacgt ttgttcgtaa caggccgtct gaataccgag 780
 cgcgtgggtg ccttgggcgg cctgcaagtc aacaaaccgc gcctcttgcg taccgttttg 840
 ggtgcgaagg tgtctcaact taccgcccgc gaattgggtg acgcggacaa ccgcgtgatt 900
 tccggttcgg tattgaacgg tgcgattgca caaggcgcg atgattattt gggacgctac 960
 cacaatcaga tttccgttat cgaagaaggc cgcagcaaag agctgttcgg ctgggttgcg 1020
 ccgcagccgg acaaatactc catcacgcgc accactctcg gccatttcct aaaaaacaaa 1080
 ctcttcaagt tcacgacagc cgtcaacggc ggcgaccgcg ccatgggtacc gatcggcact 1140
 tatgagcgcg taatgccgtt ggacatcctg cctaccttgc ttttgcgaga tttaatcgtc 1200
 ggcgataccg acagcgcgca ggctttgggt tgcttgggat tggacgaaga agacctcgct 1260
 ttgtgcagct tcgtctgccc gggcaaatc gaatacggcc cgctgttgcg caaagtgcgtg 1320
 gaaaccattg agaaggaagg ctga 1344

<210> 132
 <211> 447
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 132
 Met Ile Lys Ile Lys Lys Gly Leu Asn Leu Pro Ile Ala Gly Arg Pro
 1 5 10 15
 Glu Gln Val Ile Tyr Asp Gly Pro Ala Ile Thr Glu Val Ala Leu Leu
 20 25 30
 Gly Glu Glu Tyr Val Gly Met Arg Pro Ser Met Lys Ile Lys Glu Gly
 35 40 45
 Glu Ala Val Lys Lys Gly Gln Val Leu Phe Glu Asp Lys Lys Asn Pro
 50 55 60

Gly	Val	Val	Phe	Thr	Ala	Pro	Ala	Ser	Gly	Lys	Ile	Ala	Ala	Ile	His	65	70	75	80
Arg	Gly	Glu	Lys	Arg	Val	Leu	Gln	Ser	Val	Val	Ile	Ala	Val	Glu	Gly	85	90	95	
Asn	Asp	Glu	Ile	Glu	Phe	Glu	Arg	Tyr	Val	Pro	Glu	Ala	Leu	Ala	Lys	100	105	110	
Leu	Ser	Ser	Glu	Lys	Val	Arg	Arg	Asn	Leu	Ile	Gln	Ser	Gly	Leu	Trp	115	120	125	
Thr	Ala	Leu	Arg	Thr	Arg	Pro	Phe	Ser	Lys	Ile	Pro	Ala	Val	Asp	Ala	130	135	140	
Glu	Pro	Phe	Ala	Ile	Phe	Val	Asn	Ala	Met	Asp	Thr	Asn	Pro	Leu	Ala	145	150	155	160
Ala	Asp	Pro	Thr	Val	Ile	Ile	Lys	Glu	Ala	Ala	Glu	Asp	Phe	Lys	Arg	165	170	175	
Gly	Leu	Leu	Val	Leu	Ser	Arg	Leu	Thr	Glu	Arg	Lys	Ile	His	Val	Cys	180	185	190	
Lys	Ala	Ala	Gly	Ala	Asp	Val	Pro	Ser	Glu	Asn	Ala	Ala	Asn	Ile	Glu	195	200	205	
Thr	His	Glu	Phe	Gly	Gly	Pro	His	Pro	Ala	Gly	Leu	Ser	Gly	Thr	His	210	215	220	
Ile	His	Phe	Ile	Glu	Pro	Val	Gly	Ala	Asn	Lys	Thr	Val	Trp	Thr	Ile	225	230	235	240
Asn	Tyr	Gln	Asp	Val	Ile	Ala	Ile	Gly	Arg	Leu	Phe	Val	Thr	Gly	Arg	245	250	255	
Leu	Asn	Thr	Glu	Arg	Val	Val	Ala	Leu	Gly	Gly	Leu	Gln	Val	Asn	Lys	260	265	270	
Pro	Arg	Leu	Leu	Arg	Thr	Val	Leu	Gly	Ala	Lys	Val	Ser	Gln	Leu	Thr	275	280	285	
Ala	Gly	Glu	Leu	Val	Asp	Ala	Asp	Asn	Arg	Val	Ile	Ser	Gly	Ser	Val	290	295	300	
Leu	Asn	Gly	Ala	Ile	Ala	Gln	Gly	Ala	His	Asp	Tyr	Leu	Gly	Arg	Tyr	305	310	315	320
His	Asn	Gln	Ile	Ser	Val	Ile	Glu	Glu	Gly	Arg	Ser	Lys	Glu	Leu	Phe	325	330	335	
Gly	Trp	Val	Ala	Pro	Gln	Pro	Asp	Lys	Tyr	Ser	Ile	Thr	Arg	Thr	Thr	340	345	350	
Leu	Gly	His	Phe	Leu	Lys	Asn	Lys	Leu	Phe	Lys	Phe	Thr	Thr	Ala	Val	355	360	365	

Asn Gly Gly Asp Arg Ala Met Val Pro Ile Gly Thr Tyr Glu Arg Val
 370 375 380

Met Pro Leu Asp Ile Leu Pro Thr Leu Leu Leu Arg Asp Leu Ile Val
 385 390 395 400

Gly Asp Thr Asp Ser Ala Gln Ala Leu Gly Cys Leu Glu Leu Asp Glu
 405 410 415

Glu Asp Leu Ala Leu Cys Ser Phe Val Cys Pro Gly Lys Tyr Glu Tyr
 420 425 430

Gly Pro Leu Leu Arg Lys Val Leu Glu Thr Ile Glu Lys Glu Gly
 435 440 445

<210> 133
 <211> 961
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (4)..(4)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (7)..(7)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (23)..(23)
 <223> N= Unknown

<400> 133
 gcgncgnaaa tcatccatcc ccnacgtcgt aggcacctgaa gccaaactggt tttttatggt 60
 agccagtacg tttgtgattg ctttgattgg ttattttggt actgaaaaaa tcgtcgaacc 120
 gcaattgggc ctttatcaat cagatttgct acaagaagaa aaagacattc ggcattccaa 180
 tgaaatcacg ctttggaat ataaaggatt aatttgggct ggcgtggtgt ttgttgccct 240
 atccgcccta ttggcttggg gcatcgctcc tgccgacggt attttgctgc atcctgaaac 300
 aggattggtt tccggttcgc cgtttttaaa atcgattggt gtttttattt tcttggtggt 360
 tgcaactgcc ggcatgttt atggccgggt aaccggaagt ttgcgcggcg aacaggaagt 420
 cgtaaatgcg myggccgaat cgatgagtag tctggsctt tmtttgswca kcatcttttt 480
 tgccgcacag tttgtcgcat tttttaattg gacgaatatt gggcaatata ttgccgttaa 540
 aggggcgacg ttcttaaaaag aagtcggcct gggcggcagc gtgttggtta tcggttttat 600
 tttaatttgt gcttttatca atctgatgat aggcctcgcc tccgcgcaat gggcggtaac 660
 tgccgcgatt ttcgtcccta tgctgatggt ggccggctac gcgcccgaag tcattcaagc 720
 cgcttaccgc atcggtgatt ccgttaccaa tattattacg ccgatgatga gttatttcgg 780
 gctgattatg gcgacggtgr kcmmtacaa aaaagatgcg ggcgtgggta cgctgattwc 840
 tatgatgttg ccgtattccg ctttcttctt gattgcgtgg attgccttat tctgcatttg 900
 ggtatttggt ttgggcctgc ccgtcggtcc cggcgcgccc acattctatc ccgcacctta 960
 a 961

<210> 134
 <211> 320

<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (2)..(3)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (8)..(9)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (145)..(145)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (153)..(153)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (155)..(155)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (157)..(158)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (268)..(269)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (281)..(281)
<223> Xaa= any amino acid

<400> 134
Ala Xaa Xaa Ile Ile His Pro Xaa Xaa Val Val Gly Pro Glu Ala Asn
1 5 10 15
Trp Phe Phe Met Val Ala Ser Thr Phe Val Ile Ala Leu Ile Gly Tyr
20 25 30
Phe Val Thr Glu Lys Ile Val Glu Pro Gln Leu Gly Pro Tyr Gln Ser
35 40 45
Asp Leu Ser Gln Glu Glu Lys Asp Ile Arg His Ser Asn Glu Ile Thr
50 55 60

Pro Leu Glu Tyr Lys Gly Leu Ile Trp Ala Gly Val Val Phe Val Ala
 65 70 75 80
 Leu Ser Ala Leu Leu Ala Trp Ser Ile Val Pro Ala Asp Gly Ile Leu
 85 90 95
 Arg His Pro Glu Thr Gly Leu Val Ser Gly Ser Pro Phe Leu Lys Ser
 100 105 110
 Ile Val Val Phe Ile Phe Leu Leu Phe Ala Leu Pro Gly Ile Val Tyr
 115 120 125
 Gly Arg Val Thr Arg Ser Leu Arg Gly Glu Gln Glu Val Val Asn Ala
 130 135 140
 Xaa Ala Glu Ser Met Ser Thr Leu Xaa Leu Xaa Leu Xaa Xaa Ile Phe
 145 150 155 160
 Phe Ala Ala Gln Phe Val Ala Phe Phe Asn Trp Thr Asn Ile Gly Gln
 165 170 175
 Tyr Ile Ala Val Lys Gly Ala Thr Phe Leu Lys Glu Val Gly Leu Gly
 180 185 190
 Gly Ser Val Leu Phe Ile Gly Phe Ile Leu Ile Cys Ala Phe Ile Asn
 195 200 205
 Leu Met Ile Gly Ser Ala Ser Ala Gln Trp Ala Val Thr Ala Pro Ile
 210 215 220
 Phe Val Pro Met Leu Met Leu Ala Gly Tyr Ala Pro Glu Val Ile Gln
 225 230 235 240
 Ala Ala Tyr Arg Ile Gly Asp Ser Val Thr Asn Ile Ile Thr Pro Met
 245 250 255
 Met Ser Tyr Phe Gly Leu Ile Met Ala Thr Val Xaa Xaa Tyr Lys Lys
 260 265 270
 Asp Ala Gly Val Gly Thr Leu Ile Xaa Met Met Leu Pro Tyr Ser Ala
 275 280 285
 Phe Phe Leu Ile Ala Trp Ile Ala Leu Phe Cys Ile Trp Val Phe Val
 290 295 300
 Leu Gly Leu Pro Val Gly Pro Gly Ala Pro Thr Phe Tyr Pro Ala Pro
 305 310 315 320

<210> 135
 <211> 1569
 <212> DNA
 <213> Neisseria meningitidis

<400> 135
 atgagtcaaa ccgatacgca acgggacgga cgattttttac gcacagtcga atggctgggc 60
 aatatgttgc cgcattccggt tacgctttttt attatttttca ttgtgttatt gctgattgcc 120

tctgccgtcg	gtgcgtat	cgactatcc	gtccccgatc	cgcgccctgt	tggtgcgaaa	180
ggacgtgccg	atgacggttt	gatttacatt	gtcagcctgc	tcaatgccga	cggtttttatc	240
aaaatcctga	cgcataccgt	taaaaatttc	accggtttcg	cgccgttggg	aacggtgttg	300
gtttctttat	tgggcgtggg	gattgcggaa	aaatcgggct	tgatttccgc	attaatgcgc	360
ttattgctca	caaaatcgcc	acgcaaactc	actactttta	tggttggttt	tacagggatt	420
ttatctaata	ccgcttctga	attgggctat	gtcgtcctaa	tccctttgtc	cgccatcatc	480
tttcattccc	tcggccgcca	tccgcttgcc	ggctctggctg	cggttttcgc	cggcgtttcg	540
ggcgggttatt	cggccaatct	gttcttaggc	acaatcgatc	cgctcttggc	aggcatcacc	600
caacaggcgg	cgcaa	atccatcccgac	tacgtcgtag	gccctgaagc	caactggttt	660
tttatggtag	ccagtacgtt	tgtgattgct	ttgattgggt	atthttgttac	tgaaaaaatc	720
gtcgaaccgc	aattgggccc	ttatcaatca	gatttgtcac	aagaagaaaa	agacattcgg	780
cattccaatg	aaatcacgcc	tttggaatat	aaaggattaa	tttgggctgg	cgtggtgttt	840
gttgccttat	ccgcccattt	ggcttggagc	atcgccctg	ccgacgggat	tttgcgtcat	900
cctgaaacag	gattggtttc	cggttcgccg	tttttaaaat	cgattgttgt	ttttattttc	960
ttgttggttg	cactgccggg	cattgtttat	ggccgggtaa	cccgaagttt	gcgcggcgaa	1020
caggaagtcg	ttaatgcat	ggccgaatcg	atgagtactc	tggggcttta	tttggtcac	1080
atcttttttg	ccgcacagtt	tgtcgcattt	tttaattgga	cgaatattgg	gcaatatatt	1140
gccgttaaag	ggg	cgacgtt	cttaaaagaa	gtcggcttgg	gcggcagcgt	1200
ggttttattt	taattt	gtgc	ttttatcaat	ctgatgatag	gctccgcctc	1260
gcggtaactg	cgccgatttt	cgtccctatg	ctgatgttgg	ccggctacgc	gcccgaagtc	1320
attcaagccg	cttaccgcat	cggtgattcc	gttaccaata	ttattacgcc	gatgatgagt	1380
tatttcgggc	tgattatggc	gacggtgatc	aaatacaaaa	aagatgcggg	cgtgggtacg	1440
ctgatttcta	tgatgttgcc	gtattccgct	ttcttcttga	ttgcgtggat	tgctttattc	1500
tgcatttggg	tatttggttt	gggcctgccc	gtcgggtccc	gcgcgcccac	attctatccc	1560
gcaccttaa						1569

<210> 136

<211> 522

<212> PRT

<213> Neisseria meningitidis

<400> 136

Met	Ser	Gln	Thr	Asp	Thr	Gln	Arg	Asp	Gly	Arg	Phe	Leu	Arg	Thr	Val
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Glu	Trp	Leu	Gly	Asn	Met	Leu	Pro	His	Pro	Val	Thr	Leu	Phe	Ile	Ile
			20					25					30		

Phe	Ile	Val	Leu	Leu	Leu	Ile	Ala	Ser	Ala	Val	Gly	Ala	Tyr	Phe	Gly
		35					40					45			

Leu	Ser	Val	Pro	Asp	Pro	Arg	Pro	Val	Gly	Ala	Lys	Gly	Arg	Ala	Asp
	50					55					60				

Asp	Gly	Leu	Ile	Tyr	Ile	Val	Ser	Leu	Leu	Asn	Ala	Asp	Gly	Phe	Ile
65					70					75					80

Lys	Ile	Leu	Thr	His	Thr	Val	Lys	Asn	Phe	Thr	Gly	Phe	Ala	Pro	Leu
				85					90					95	

Gly	Thr	Val	Leu	Val	Ser	Leu	Leu	Gly	Val	Gly	Ile	Ala	Glu	Lys	Ser
			100					105					110		

Gly	Leu	Ile	Ser	Ala	Leu	Met	Arg	Leu	Leu	Leu	Thr	Lys	Ser	Pro	Arg
		115					120					125			

Lys	Leu	Thr	Thr	Phe	Met	Val	Val	Phe	Thr	Gly	Ile	Leu	Ser	Asn	Thr	130	135	140	
Ala	Ser	Glu	Leu	Gly	Tyr	Val	Val	Leu	Ile	Pro	Leu	Ser	Ala	Ile	Ile	145	150	155	160
Phe	His	Ser	Leu	Gly	Arg	His	Pro	Leu	Ala	Gly	Leu	Ala	Ala	Ala	Phe	165	170	175	
Ala	Gly	Val	Ser	Gly	Gly	Tyr	Ser	Ala	Asn	Leu	Phe	Leu	Gly	Thr	Ile	180	185	190	
Asp	Pro	Leu	Leu	Ala	Gly	Ile	Thr	Gln	Gln	Ala	Ala	Gln	Ile	Ile	His	195	200	205	
Pro	Asp	Tyr	Val	Val	Gly	Pro	Glu	Ala	Asn	Trp	Phe	Phe	Met	Val	Ala	210	215	220	
Ser	Thr	Phe	Val	Ile	Ala	Leu	Ile	Gly	Tyr	Phe	Val	Thr	Glu	Lys	Ile	225	230	235	240
Val	Glu	Pro	Gln	Leu	Gly	Pro	Tyr	Gln	Ser	Asp	Leu	Ser	Gln	Glu	Glu	245	250	255	
Lys	Asp	Ile	Arg	His	Ser	Asn	Glu	Ile	Thr	Pro	Leu	Glu	Tyr	Lys	Gly	260	265	270	
Leu	Ile	Trp	Ala	Gly	Val	Val	Phe	Val	Ala	Leu	Ser	Ala	Leu	Leu	Ala	275	280	285	
Trp	Ser	Ile	Val	Pro	Ala	Asp	Gly	Ile	Leu	Arg	His	Pro	Glu	Thr	Gly	290	295	300	
Leu	Val	Ser	Gly	Ser	Pro	Phe	Leu	Lys	Ser	Ile	Val	Val	Phe	Ile	Phe	305	310	315	320
Leu	Leu	Phe	Ala	Leu	Pro	Gly	Ile	Val	Tyr	Gly	Arg	Val	Thr	Arg	Ser	325	330	335	
Leu	Arg	Gly	Glu	Gln	Glu	Val	Val	Asn	Ala	Met	Ala	Glu	Ser	Met	Ser	340	345	350	
Thr	Leu	Gly	Leu	Tyr	Leu	Val	Ile	Ile	Phe	Phe	Ala	Ala	Gln	Phe	Val	355	360	365	
Ala	Phe	Phe	Asn	Trp	Thr	Asn	Ile	Gly	Gln	Tyr	Ile	Ala	Val	Lys	Gly	370	375	380	
Ala	Thr	Phe	Leu	Lys	Glu	Val	Gly	Leu	Gly	Gly	Ser	Val	Leu	Phe	Ile	385	390	395	400
Gly	Phe	Ile	Leu	Ile	Cys	Ala	Phe	Ile	Asn	Leu	Met	Ile	Gly	Ser	Ala	405	410	415	
Ser	Ala	Gln	Trp	Ala	Val	Thr	Ala	Pro	Ile	Phe	Val	Pro	Met	Leu	Met	420	425	430	

Leu Ala Gly Tyr Ala Pro Glu Val Ile Gln Ala Ala Tyr Arg Ile Gly
 435 440 445

Asp Ser Val Thr Asn Ile Ile Thr Pro Met Met Ser Tyr Phe Gly Leu
 450 455 460

Ile Met Ala Thr Val Ile Lys Tyr Lys Lys Asp Ala Gly Val Gly Thr
 465 470 475 480

Leu Ile Ser Met Met Leu Pro Tyr Ser Ala Phe Phe Leu Ile Ala Trp
 485 490 495

Ile Ala Leu Phe Cys Ile Trp Val Phe Val Leu Gly Leu Pro Val Gly
 500 505 510

Pro Gly Ala Pro Thr Phe Tyr Pro Ala Pro
 515 520

<210> 137
 <211> 1569
 <212> DNA
 <213> Neisseria meningitidis

<400> 137
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 aatatgttgc cgcacccggt tacgctttttt attatttttca ttgtgttatt gctgattgcc 120
 tctgccgccg gtgcgtatatt cggactatcc gtccecgatc cgcgccctgt tgggtgcgaaa 180
 ggacgtgccg atgacggttt gattcacgtt gtcagcctgc tcgatgctga cggtttgatc 240
 aaaatcctga cgcataccgt taaaaatttc accggtttcg cgcgcgttggg aacgggtgtt 300
 gtttctttat tgggcgtggg gattgcggaa aaatcgggct tgatttcgcg attaatgcgc 360
 ttattgctca caaaatctcc acgcaaactc actactttta tgggtgtttt tacagggatt 420
 ttatctaata ccgcttctga attgggctat gtcgtcctaa tccctttgtc cgccatcacc 480
 tttcattccc tcggccgcca tccgcttgcc ggtctggctg cggctttcgc cggcggttcg 540
 ggccggttatt cggccaatct gttcttaggc acaatcgatc cgctcttggc aggcaccacc 600
 caacaggcgg cgcaaatcat ccatcccgac tacgtcgtag gccctgaagc caactggttt 660
 tttatggtag ccagtacgtt tgtgattgct ttgattgggt attttgttac tgaaaaaatc 720
 gtcgaaccgc aattgggccc ttatcaatca gatttgtcac aagaagaaaa agacattcga 780
 cattccaatg aaatcacgcc tttggaatat aaaggattaa tttgggctgg cgtgggtgtt 840
 gttgccttat ccgccctatt ggcttggagc atcgtccctg ccgacgggat tttgcgtcat 900
 cctgaaacag gattggtttc cggttcgccg tttttaaaat caattgttgt ttttattttc 960
 ttgttgtttg cactgccggg cattgtttat ggccgggtaa cccgaagttt gcgcggcgaa 1020
 caggaagtcg ttaatgcgat ggccgaatcg atgagtactc tggggcttta tttggtcacc 1080
 atcttttttg ccgcacagtt tgtcgcattt ttttaattgga cgaatattgg gcaatatatt 1140
 gccgttaaag gggcgacgtt cttaaaagaa gtcggcttgg gcggcagcgt gttgtttatc 1200
 ggtttttatt taatttgtgc ttttatcaat ctgatgatag gtcgccctc cgcgcaatgg 1260
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 attcaagccg cttaccgcat cggtgattcc gttaccaata ttattacgcc gatgatgagt 1380
 tatttcgggc tgattatggc gacgggtgatc aaatacaaaa aagatgcggg cgtgggtacg 1440
 ctgatttcta tgatgttgcc gtattccgct ttcttcttga ttgcgtggat tgccttatcc 1500
 tgcatttggg tatttgtttt gggcctgccc gtcgggtccc gcgcgccac attctatccc 1560
 gcaccttaa 1569

<210> 138
 <211> 522
 <212> PRT
 <213> Neisseria meningitidis

<400> 138

Met	Ser	Gln	Thr	Asp	Thr	Gln	Arg	Asp	Gly	Arg	Phe	Leu	Arg	Thr	Val
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Glu	Trp	Leu	Gly	Asn	Met	Leu	Pro	His	Pro	Val	Thr	Leu	Phe	Ile	Ile
		20						25					30		
Phe	Ile	Val	Leu	Leu	Leu	Ile	Ala	Ser	Ala	Ala	Gly	Ala	Tyr	Phe	Gly
	35						40					45			
Leu	Ser	Val	Pro	Asp	Pro	Arg	Pro	Val	Gly	Ala	Lys	Gly	Arg	Ala	Asp
	50					55					60				
Asp	Gly	Leu	Ile	His	Val	Val	Ser	Leu	Leu	Asp	Ala	Asp	Gly	Leu	Ile
65				70						75					80
Lys	Ile	Leu	Thr	His	Thr	Val	Lys	Asn	Phe	Thr	Gly	Phe	Ala	Pro	Leu
			85						90					95	
Gly	Thr	Val	Leu	Val	Ser	Leu	Leu	Gly	Val	Gly	Ile	Ala	Glu	Lys	Ser
		100						105						110	
Gly	Leu	Ile	Ser	Ala	Leu	Met	Arg	Leu	Leu	Leu	Thr	Lys	Ser	Pro	Arg
	115						120					125			
Lys	Leu	Thr	Thr	Phe	Met	Val	Val	Phe	Thr	Gly	Ile	Leu	Ser	Asn	Thr
	130					135					140				
Ala	Ser	Glu	Leu	Gly	Tyr	Val	Val	Leu	Ile	Pro	Leu	Ser	Ala	Ile	Ile
145					150					155					160
Phe	His	Ser	Leu	Gly	Arg	His	Pro	Leu	Ala	Gly	Leu	Ala	Ala	Ala	Phe
			165						170					175	
Ala	Gly	Val	Ser	Gly	Gly	Tyr	Ser	Ala	Asn	Leu	Phe	Leu	Gly	Thr	Ile
		180						185					190		
Asp	Pro	Leu	Leu	Ala	Gly	Ile	Thr	Gln	Gln	Ala	Ala	Gln	Ile	Ile	His
	195						200					205			
Pro	Asp	Tyr	Val	Val	Gly	Pro	Glu	Ala	Asn	Trp	Phe	Phe	Met	Val	Ala
	210					215					220				
Ser	Thr	Phe	Val	Ile	Ala	Leu	Ile	Gly	Tyr	Phe	Val	Thr	Glu	Lys	Ile
225					230					235					240
Val	Glu	Pro	Gln	Leu	Gly	Pro	Tyr	Gln	Ser	Asp	Leu	Ser	Gln	Glu	Glu
			245						250					255	
Lys	Asp	Ile	Arg	His	Ser	Asn	Glu	Ile	Thr	Pro	Leu	Glu	Tyr	Lys	Gly
		260						265					270		
Leu	Ile	Trp	Ala	Gly	Val	Val	Phe	Val	Ala	Leu	Ser	Ala	Leu	Leu	Ala
	275						280					285			
Trp	Ser	Ile	Val	Pro	Ala	Asp	Gly	Ile	Leu	Arg	His	Pro	Glu	Thr	Gly

290	295	300
Leu Val Ser Gly Ser Pro Phe Leu Lys Ser Ile Val Val Phe Ile Phe 305 310 315 320		
Leu Leu Phe Ala Leu Pro Gly Ile Val Tyr Gly Arg Val Thr Arg Ser 325 330 335		
Leu Arg Gly Glu Gln Glu Val Val Asn Ala Met Ala Glu Ser Met Ser 340 345 350		
Thr Leu Gly Leu Tyr Leu Val Ile Ile Phe Phe Ala Ala Gln Phe Val 355 360 365		
Ala Phe Phe Asn Trp Thr Asn Ile Gly Gln Tyr Ile Ala Val Lys Gly 370 375 380		
Ala Thr Phe Leu Lys Glu Val Gly Leu Gly Gly Ser Val Leu Phe Ile 385 390 395 400		
Gly Phe Ile Leu Ile Cys Ala Phe Ile Asn Leu Met Ile Gly Ser Ala 405 410 415		
Ser Ala Gln Trp Ala Val Thr Ala Pro Ile Phe Val Pro Met Leu Met 420 425 430		
Leu Ala Gly Tyr Ala Pro Glu Val Ile Gln Ala Ala Tyr Arg Ile Gly 435 440 445		
Asp Ser Val Thr Asn Ile Ile Thr Pro Met Met Ser Tyr Phe Gly Leu 450 455 460		
Ile Met Ala Thr Val Ile Lys Tyr Lys Lys Asp Ala Gly Val Gly Thr 465 470 475 480		
Leu Ile Ser Met Met Leu Pro Tyr Ser Ala Phe Phe Leu Ile Ala Trp 485 490 495		
Ile Ala Leu Phe Cys Ile Trp Val Phe Val Leu Gly Leu Pro Val Gly 500 505 510		
Pro Gly Ala Pro Thr Phe Tyr Pro Ala Pro 515 520		

<210> 139
 <211> 1569
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 139	
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aatatgttgc cgcacccggg tacgtttttt attattttca ttgtgttatt gctgattgcc	120
tctgccgtcg gtgcgtatgt cggactatcc gtccccgatc cgcgtcctgt tggggcgaaa	180
ggacgtgccg atgacggttt gattcacgtt gtcagcctgc tcgatgccga cggtttgatc	240
aaaatcctga cgcataccgt taaaaatttc accggtttcg cgccgttggg aacgggtgtg	300
gtttctttat tgggcgtggg gattgcggaa aaatcgggct tgatttccgc attaatgcgc	360

ttattgetca	caaaatcccc	acgcaaactc	actactttta	tggttggttt	tacagggatt	420
ttatccaata	cggcttctga	attgggctat	gtcgtcctaa	tccctttgtc	cgccgctcatc	480
tttcattcgc	tgggccgcca	tccgcttgcc	ggtttggtcg	cggtcttcgc	cggcgtttcg	540
ggcgggttatt	cggccaatct	gttcttaggc	acaatcgatc	cgctcttggc	aggcatcacc	600
caacaggcgg	cgcaaatcat	ccatcccgc	tacgtcgtag	gccctgaagc	caactgggtt	660
tttatggcag	ccagtacgtt	tgtgattgct	ttgattgggt	attttggtac	tgaaaaaatc	720
gtcgaaccgc	aattgggccc	ttatcaatca	gatttggtcac	aagaagaaaa	agacattcgg	780
cattccaatg	aaatcacgcc	tttggaatat	aaaggattaa	tttgggcagg	cgtgggtgtt	840
gttgcccttat	ccgccctatt	ggcttggagc	atcgccctg	ccgacggtat	tttgcgtcat	900
cctgaaacag	gattgggtgc	cggttcgccg	tttttaaaat	cgattgttgt	ttttattttc	960
ttgttggttg	cgctgccggg	cattgtttat	ggccggataa	cccgaagttt	gcgcggcgaa	1020
cgggaagtcg	ttaatgcgat	ggccgaatcg	atgagtactt	tgggacttta	tttgggtcatc	1080
atcttttttg	ccgcacagtt	tgtcgcattt	tttaattgga	cgaatattgg	gcaatatatt	1140
gccgttaaag	gggcgggtgt	cttaaaagaa	gtcggcttgg	gcggcagtg	gttggtttatc	1200
ggttttattt	taatttggtc	ttttatcaat	ctgatgatag	gtccgcctc	cgcgcaatgg	1260
gcggttaactg	cgccgatttt	cgccctatg	ctgatgttgg	ccggctacgc	gcccgaagtc	1320
attcaagccg	cttaccgc	cggtgattcc	gttaccaata	ttattacgcc	gatgatgagt	1380
tatttcgggc	tgattatggc	gacggtaatc	aaatacaaaa	aagatgcggg	cgtaggcacg	1440
ctgatttcta	tgatgttgcc	gtattccgct	ttctttcttaa	ttgcatggat	cgctttattc	1500
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gtgccttaa						1569

<210> 140
 <211> 522
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 140
 Met Ser Gln Thr Asp Ala Arg Arg Ser Gly Arg Phe Leu Arg Thr Val
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 Glu Trp Leu Gly Asn Met Leu Pro His Pro Val Thr Leu Phe Ile Ile
 20 25 30
 Phe Ile Val Leu Leu Leu Ile Ala Ser Ala Val Gly Ala Tyr Phe Gly
 35 40 45
 Leu Ser Val Pro Asp Pro Arg Pro Val Gly Ala Lys Gly Arg Ala Asp
 50 55 60
 Asp Gly Leu Ile His Val Val Ser Leu Leu Asp Ala Asp Gly Leu Ile
 65 70 75 80
 Lys Ile Leu Thr His Thr Val Lys Asn Phe Thr Gly Phe Ala Pro Leu
 85 90 95
 Gly Thr Val Leu Val Ser Leu Leu Gly Val Gly Ile Ala Glu Lys Ser
 100 105 110
 Gly Leu Ile Ser Ala Leu Met Arg Leu Leu Leu Thr Lys Ser Pro Arg
 115 120 125
 Lys Leu Thr Thr Phe Met Val Val Phe Thr Gly Ile Leu Ser Asn Thr
 130 135 140
 Ala Ser Glu Leu Gly Tyr Val Val Leu Ile Pro Leu Ser Ala Val Ile

145		150		155		160
Phe His Ser Leu Gly Arg His Pro Leu Ala Gly Leu Ala Ala Ala Phe						
	165			170		175
Ala Gly Val Ser Gly Gly Tyr Ser Ala Asn Leu Phe Leu Gly Thr Ile						
	180		185			190
Asp Pro Leu Leu Ala Gly Ile Thr Gln Gln Ala Ala Gln Ile Ile His						
	195		200			205
Pro Asp Tyr Val Val Gly Pro Glu Ala Asn Trp Phe Phe Met Ala Ala						
	210		215			220
Ser Thr Phe Val Ile Ala Leu Ile Gly Tyr Phe Val Thr Glu Lys Ile						
	225		230		235	240
Val Glu Pro Gln Leu Gly Pro Tyr Gln Ser Asp Leu Ser Gln Glu Glu						
		245		250		255
Lys Asp Ile Arg His Ser Asn Glu Ile Thr Pro Leu Glu Tyr Lys Gly						
	260		265			270
Leu Ile Trp Ala Gly Val Val Phe Val Ala Leu Ser Ala Leu Leu Ala						
	275		280			285
Trp Ser Ile Val Pro Ala Asp Gly Ile Leu Arg His Pro Glu Thr Gly						
	290		295			300
Leu Val Ala Gly Ser Pro Phe Leu Lys Ser Ile Val Val Phe Ile Phe						
	305		310		315	320
Leu Leu Phe Ala Leu Pro Gly Ile Val Tyr Gly Arg Ile Thr Arg Ser						
		325		330		335
Leu Arg Gly Glu Arg Glu Val Val Asn Ala Met Ala Glu Ser Met Ser						
		340		345		350
Thr Leu Gly Leu Tyr Leu Val Ile Ile Phe Phe Ala Ala Gln Phe Val						
	355		360			365
Ala Phe Phe Asn Trp Thr Asn Ile Gly Gln Tyr Ile Ala Val Lys Gly						
	370		375			380
Ala Val Phe Leu Lys Lys Phe Arg Leu Gly Gly Ser Val Leu Phe Ile						
	385		390		395	400
Gly Phe Ile Leu Ile Cys Ala Phe Ile Asn Leu Met Ile Gly Ser Ala						
		405		410		415
Ser Ala Gln Trp Ala Val Thr Ala Pro Ile Phe Val Pro Met Leu Met						
		420		425		430
Leu Ala Gly Asn Ala Pro Gln Val Ile Gln Ala Ala Tyr Arg Ile Gly						
	435		440			445

Asp Ser Val Thr Asn Ile Ile Thr Pro Met Met Ser Tyr Phe Gly Leu
 450 455 460

Ile Met Ala Thr Val Ile Lys Tyr Lys Lys Asp Ala Gly Val Gly Thr
 465 470 475 480

Leu Ile Ser Met Met Leu Pro Tyr Ser Ala Phe Phe Leu Ile Ala Trp
 485 490 495

Ile Ala Leu Phe Cys Ile Trp Val Phe Val Leu Gly Leu Pro Val Gly
 500 505 510

Pro Gly Thr Pro Thr Phe Tyr Pro Val Pro
 515 520

<210> 141
 <211> 503
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (20)..(20)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (22)..(22)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (459)..(459)
 <223> N= Unknown

<400> 141
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 ttcggggaaca tccagaccgc agtggaaca gggttttttc atggcatttc ggtttcgtct 120
 gtgttttggtg cggcggcaca agactcggca atgggttcgc gcagtgcgtc tataccggta 180
 ttttcagcaa cggaaatgcg gacggcggca atttttcccg cagcgtcgcg ccatatgccc 240
 gtgttttggt cttcagacgg cagcaggctcg gttttgttgt acaccttgat gcacggaata 300
 tcgccggcat ggatttcttg cagtacgttt tccacgtctt caatctgctg tccgctgttc 360
 ggagcggcgg catcgacgac gtgcagcagc acatcggtt gcgcgggttc ttccagcgtg 420
 gcggaaaagg cggaaatcag tttgtgcggc agatygctna cgaatccgac ggtatcggtc 480
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<210> 142
 <211> 167
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (7)..(8)
 <223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (152)..(152)

<223> Xaa= any amino acid

<400> 142

Thr Ala Gly Ala Ala Gly Xaa Xaa Val Phe Val Phe Val Thr Asp Ser
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Gln Val Glu Val Phe Gly Asn Ile Gln Thr Ala Val Glu Thr Gly Phe
20 25 30

Phe His Gly Ile Ser Val Ser Ser Val Phe Gly Ala Ala Ala Gln Asp
35 40 45

Ser Ala Met Ala Ser Arg Ser Ala Ser Ile Pro Val Phe Ser Ala Thr
50 55 60

Glu Met Arg Thr Ala Ala Ile Phe Pro Ala Ala Ser Arg His Met Pro
65 70 75 80

Val Phe Cys Ser Ser Asp Gly Ser Arg Ser Val Leu Leu Tyr Thr Leu
85 90 95

Met His Gly Ile Ser Pro Ala Trp Ile Ser Cys Ser Thr Phe Ser Thr
100 105 110

Ser Ser Ile Cys Cys Pro Leu Phe Gly Ala Ala Ala Ser Thr Thr Cys
115 120 125

Ser Ser Thr Ser Ala Cys Ala Val Ser Ser Ser Val Ala Glu Lys Ala
130 135 140

Glu Ile Ser Leu Cys Gly Arg Xaa Leu Thr Asn Pro Thr Val Ser Val
145 150 155 160

Arg Ile Met Leu His Ser Gly
165

<210> 143

<211> 1149

<212> DNA

<213> Neisseria meningitidis

<400> 143

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gcgttccttt	tggttggcgg	cttcgatttt	ttgcgcgtca	tagggtgcgg	cggtgtagcc	180
tatctgcctg	attttcaaca	gaatgtcggg	aaggcggatt	ttgccgtcgt	cccagacgac	240
gcggcagcgg	tgcgtgctgt	aattgaggtc	gatgcggacg	atgccgtctg	tacgcaaaag	300
ctgctgttcg	atcagccaga	cgcaggcggc	gcaggtgatg	ccgccgagca	ttaaaaccgc	360
ctcgcgcggtg	ccgccgtggg	tttccacaaa	gtcggactgg	acttcgggca	ggtcgtacag	420
gcggatttgg	tgcaggattt	cttggggcgg	cagctcggtt	ttttgcgcgt	cggcgggtgcg	480
ttgtttgtaa	taactgcccc	agcccgcgtc	aataatgctt	tgtgcgactg	cctgacaacc	540
ggcgcagcag	gtttcgcggg	cttcgttttc	gtaacggacg	gtcagatgca	ggttttcggg	600
aacgtccagc	ccgcagtggg	aacaggtttt	tttcatggca	tttcggtttc	gtctgtgttt	660

gggtgcggcgg	cacaatactc	ggcaatggct	tgcgcgagtg	cgtctataacc	ggtatttttca	720
gcaacggaaa	tgcggacggc	ggcaattttt	cccgcagcgt	cgcgccatat	gcccgtgttt	780
tggtcttcag	acggcagcag	gtcgggtttg	ttgtacacct	tgatgcacgg	aatatcgccg	840
gcatggattt	cttgcaagtac	gttttccacg	tcttcaatct	gctgtccgct	gttcggagcg	900
gcggcatcga	cgacgtgcag	cagcacatcg	gcttgccgcg	tttcttccag	cgtggcggaa	960
aaggcggaaa	tcagtttgtg	cggcagatcg	ctgacgaatc	cgacggtatc	ggtcaggata	1020
atgctgcatt	cgggactgat	gtacagccgc	cgcgccgctg	tgtcgagtg	ggcgaaaagc	1080
tggtctttcg	catatatgcc	cgacttggtc	agccggttga	acagactgga	tttgccgaca	1140
ttggtatag						1149

<210> 144
 <211> 381
 <212> PRT
 <213> Neisseria meningitidis

<400> 144

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Gly	Arg	Gln	Arg	Glu	His	His	Arg	Leu	His	His	Pro	Gln	Pro	Gly	Asn	20	25	30	
Gly	Glu	Ala	Asp	Asp	Val	Leu	Phe	Ala	Phe	Phe	Leu	Val	Gly	Gly	Phe	35	40	45	
Asp	Phe	Leu	Arg	Val	Ile	Gly	Cys	Gly	Gly	Val	Ala	Tyr	Leu	Pro	Asp	50	55	60	
Phe	Gln	Gln	Asn	Val	Gly	Lys	Ala	Asp	Phe	Ala	Val	Val	Pro	Asp	Asp	65	70	75	80
Ala	Ala	Ala	Val	Arg	Ala	Val	Ile	Glu	Val	Asp	Ala	Asp	Asp	Ala	Val	85	90	95	
Cys	Thr	Gln	Lys	Leu	Leu	Phe	Asp	Gln	Pro	Asp	Ala	Gly	Gly	Ala	Gly	100	105	110	
Asp	Ala	Ala	Glu	His	Asn	Arg	Leu	Ala	Arg	Ala	Ala	Val	Gly	Phe	His	115	120	125	
Lys	Val	Gly	Leu	Asp	Phe	Gly	Gln	Val	Val	Gln	Ala	Asp	Leu	Val	Glu	130	135	140	
Asp	Phe	Leu	Gly	Arg	Gln	Leu	Gly	Phe	Leu	Arg	Val	Gly	Gly	Ala	Leu	145	150	155	160
Phe	Val	Ile	Thr	Ala	Gln	Ala	Arg	Val	Asn	Asn	Ala	Leu	Cys	Asp	Cys	165	170	175	
Leu	Thr	Thr	Gly	Ala	Ala	Gly	Phe	Ala	Val	Phe	Val	Phe	Val	Thr	Asp	180	185	190	
Gly	Gln	Met	Gln	Val	Phe	Gly	Asn	Val	Gln	Pro	Ala	Val	Glu	Thr	Gly	195	200	205	
Phe	Phe	His	Gly	Ile	Ser	Val	Ser	Ser	Val	Phe	Gly	Ala	Ala	Ala	Gln				

Gly	Lys	Ala	Asp	Asp	Val	Leu	Phe	Ala	Phe	Phe	Leu	Val	Gly	Gly	Phe	35	40	45
Asp	Phe	Leu	Arg	Val	Ile	Gly	Cys	Gly	Gly	Val	Ala	Cys	Leu	Pro	Asp	50	55	60
Phe	Gln	Gln	Asn	Val	Gly	Glu	Ala	Asp	Phe	Ala	Val	Val	Pro	Asp	Asp	65	70	75
Ala	Ala	Ala	Val	Arg	Ala	Val	Ile	Glu	Val	Asp	Ala	Asp	Asp	Ala	Val	85	90	95
Cys	Ala	Gln	Lys	Leu	Leu	Phe	Asp	Gln	Pro	Asp	Ala	Gly	Gly	Ala	Gly	100	105	110
Asn	Ala	Ala	Glu	His	Gln	His	Cys	Phe	Val	Arg	Ala	Ile	Met	Gly	Phe	115	120	125
His	Lys	Val	Gly	Leu	Asp	Phe	Gly	Gln	Val	Val	Gln	Ala	Asp	Leu	Val	130	135	140
Glu	Asp	Phe	Leu	Gly	Arg	Gln	Phe	Gly	Phe	Phe	Arg	Val	Gly	Gly	Ala	145	150	155
Ser	Phe	Val	Ile	Thr	Ala	Gln	Ala	Gly	Ile	Asp	Asp	Ala	Leu	Cys	Asp	165	170	175
Cys	Leu	Thr	Ala	Asp	Ala	Ala	Gly	Phe	Ala	Val	Phe	Ala	Phe	Val	Ala	180	185	190
Asp	Gly	Gln	Met	Gln	Val	Phe	Gly	Asn	Val	Gln	Pro	Ala	Val	Glu	Thr	195	200	205
Gly	Phe	Phe	His	Gly	Ile	Ser	Val	Ser	Ser	Val	Phe	Gly	Ala	Ala	Ala	210	215	220
Gln	Tyr	Ser	Ala	Met	Ala	Ser	Arg	Ser	Ala	Ser	Ile	Pro	Val	Phe	Ser	225	230	235
Ala	Thr	Glu	Met	Arg	Thr	Ala	Ala	Ile	Phe	Pro	Ala	Ala	Ser	Arg	His	245	250	255
Met	Pro	Val	Phe	Cys	Ser	Ser	Asp	Gly	Ser	Arg	Ser	Val	Leu	Leu	Tyr	260	265	270
Thr	Leu	Met	His	Gly	Ile	Ser	Trp	Ala	Trp	Ile	Ser	Cys	Ser	Thr	Phe	275	280	285
Ser	Thr	Ser	Ser	Ile	Cys	Cys	Pro	Leu	Phe	Arg	Ala	Ala	Ala	Ser	Thr	290	295	300
Thr	Cys	Ser	Ser	Thr	Ser	Ala	Cys	Thr	Val	Ser	Ser	Lys	Val	Ala	Glu	305	310	315
Lys	Ala	Glu	Ile	Ser	Leu	Cys	Gly	Arg	Ser	Leu	Thr	Asn	Pro	Thr	Val	325	330	335

Ser Val Arg Ile Met Leu His Ala Gly Leu Met Tyr Ser Arg Arg Ala
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Val Val Ser Arg Val Ala Lys Ser Trp Ser Phe Ala Tyr Met Pro Asp
355 360 365

Leu Val Ser Arg Leu Asn Arg Leu Asp Leu Pro Thr Leu Val
370 375 380

<210> 147
<211> 542
<212> DNA
<213> Neisseria meningitidis

<220>
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<222> (38)..(38)
<223> N= Unknown

<220>
<221> misc_feature
<222> (254)..(254)
<223> N= Unknown

<220>
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<222> (356)..(356)
<223> N= Unknown

<220>
<221> misc_feature
<222> (458)..(458)
<223> N= Unknown

<400> 147
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ggtttcggct atgcgtcgct ggccgctttg tcgttcggcg cgctgatgat tgcgctgtta 180
gacgtgtcgt caaatatggc gatgcagccg ttttaagatga tggtcggcga catggtcaac 240
gaggagcaga aaantacgcc tacgggattc aaagtttctt agcaaatacg ggcgcggctc 300
tgccggcgat tctgccgttt gtgtttgcgt atatcggttt ggcgaacacc gccganaaag 360
gcgttggtgcc gcagaccgtg gtcgtggcgt tttatgtggg tgccggcgtt ctggtgatta 420
ccagcgcgtt cacgattttc aaagtgaagg aatacgancc ggaaacctac gcccgttacc 480
acggcatcga tgcgcgccgc aatcaggaaa aagccaactg gatcgactc ttaaaaccgc 540
gc 542

<210> 148
<211> 181
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (13)..(13)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (85)..(85)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (119)..(119)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (153)..(153)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (180)..(180)
<223> Xaa= any amino acid

<400> 148
Gly His Tyr Ser Asp Arg Thr Trp Lys Pro Arg Leu Xaa Gly Arg Arg
1 5 10 15
Leu Pro Tyr Leu Leu Tyr Gly Thr Leu Ile Ala Val Ile Val Met Ile
20 25 30
Leu Met Pro Asn Ser Gly Ser Phe Gly Phe Gly Tyr Ala Ser Leu Ala
35 40 45
Ala Leu Ser Phe Gly Ala Leu Met Ile Ala Leu Leu Asp Val Ser Ser
50 55 60
Asn Met Ala Met Gln Pro Phe Lys Met Met Val Gly Asp Met Val Asn
65 70 75 80
Glu Glu Gln Lys Xaa Tyr Ala Tyr Gly Ile Gln Ser Phe Leu Ala Asn
85 90 95
Thr Gly Ala Val Val Ala Ala Ile Leu Pro Phe Val Phe Ala Tyr Ile
100 105 110
Gly Leu Ala Asn Thr Ala Xaa Lys Gly Val Val Pro Gln Thr Val Val
115 120 125
Val Ala Phe Tyr Val Gly Ala Ala Leu Leu Val Ile Thr Ser Ala Phe
130 135 140
Thr Ile Phe Lys Val Lys Glu Tyr Xaa Pro Glu Thr Tyr Ala Arg Tyr
145 150 155 160
His Gly Ile Asp Val Ala Ala Asn Gln Glu Lys Ala Asn Trp Ile Ala
165 170 175
Leu Leu Lys Xaa Ala
180

<210> 149
 <211> 1356
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 149
 atgtcgggaat atacgcctca aacagcaaaa caagggtttgc ccgcgctggc aaaaagcacg 60
 atttggatgc tcagtttcgg ctttctcggc gttcagacgg cctttaccct gcaaagctcg 120
 caaatgagcc gcatttttca aacgctaggg gcagaccgcg acaatttggg ctggtttttc 180
 atcctgccgc cgctggcggg gatgctgggtg cagccgattg tcggccatta ctccgaccgc 240
 acttgggaagc cgcgtttggg cggccgcgct ctgccgtatc tgctttatgg cacgctgatt 300
 gcggttattg tgatgatttt gatgccgaac tcgggcagct tcggtttcgg ctatgcgtcg 360
 ctggcggctt tgcgttcgg cgcgctgatg attgcgctgt tagacgtgtc gtcaaataatg 420
 gcgatgcagc cgtttaagat gatggtcggc gacatgggtc acgaggagca gaaaggctac 480
 gcctacggga ttcaaagttt cttagcaaat acgggcgcgg tcgtggcggc gattctgccg 540
 tttgtgtttg cgtatatcgg tttggcgaac accgccgaga aaggcggttg gccgcagacc 600
 gtggtcgtgg cgttttatgt gggcgcggcg ttgctgggtg ttaccagcgc gttcacgatt 660
 ttcaaagtga aggaatacga tccggaacc tacgcccggt accacggcat cgatgtcgcc 720
 gcgaatcagg aaaaagccaa ctggatcgaa ctcttgaaaa ccgcgcctaa ggcgttttgg 780
 acggttactt tgggtcaatt cttctgctgg ttgcgcttcc aatatatgtg gacttactcg 840
 gcaggcgcga ttgcggaaaa cgtctggcac accaccgatg cgtcttccgt aggttatcag 900
 gaggcgggta actggtacgg cgttttggcg gcggtgcagt cggttgcggc ggtgatttgt 960
 tcgtttgtat tggcgaaagt gccgaataaa taccataagg cgggttattt cggctgtttg 1020
 gctttgggcg cgctcggctt tttctcgtt ttcttcatcg gcaaccaata cgcgctgggtg 1080
 ttgtcttata ctttaatcgg catcgcttgg gcgggcatta tcaattatcc gctgacgatt 1140
 gtgaccaacg ccttgctcgg caagcatatg ggcacttact tgggcttgtt taacggctct 1200
 atctgtatgc ctcaaatcgt cgcttcgctg ttgagtttctg tgcttttccc tatgctgggc 1260
 ggcttgcagg ccactatgtt cttggtaggg ggcgtcgctc tgctgctggg cgcgttttcc 1320
 gtgttcctga ttaaagaaac acacggcggg gtttga 1356

<210> 150
 <211> 451
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 150
 Met Ser Glu Tyr Thr Pro Gln Thr Ala Lys Gln Gly Leu Pro Ala Leu
 1 5 10 15
 Ala Lys Ser Thr Ile Trp Met Leu Ser Phe Gly Phe Leu Gly Val Gln
 20 25 30
 Thr Ala Phe Thr Leu Gln Ser Ser Gln Met Ser Arg Ile Phe Gln Thr
 35 40 45
 Leu Gly Ala Asp Pro His Asn Leu Gly Trp Phe Phe Ile Leu Pro Pro
 50 55 60
 Leu Ala Gly Met Leu Val Gln Pro Ile Val Gly His Tyr Ser Asp Arg
 65 70 75 80
 Thr Trp Lys Pro Arg Leu Gly Gly Arg Arg Leu Pro Tyr Leu Leu Tyr
 85 90 95
 Gly Thr Leu Ile Ala Val Ile Val Met Ile Leu Met Pro Asn Ser Gly
 100 105 110

Ser Phe Gly Phe Gly Tyr Ala	Ser Leu Ala Ala Leu Ser Phe Gly Ala
115	120 125
Leu Met Ile Ala Leu Leu Asp Val Ser Ser Asn Met Ala Met Gln Pro	
130	135 140
Phe Lys Met Met Val Gly Asp Met Val Asn Glu Glu Gln Lys Gly Tyr	
145	150 155 160
Ala Tyr Gly Ile Gln Ser Phe Leu Ala Asn Thr Gly Ala Val Val Ala	
	165 170 175
Ala Ile Leu Pro Phe Val Phe Ala Tyr Ile Gly Leu Ala Asn Thr Ala	
	180 185 190
Glu Lys Gly Val Val Pro Gln Thr Val Val Val Ala Phe Tyr Val Gly	
	195 200 205
Ala Ala Leu Leu Val Ile Thr Ser Ala Phe Thr Ile Phe Lys Val Lys	
	210 215 220
Glu Tyr Asp Pro Glu Thr Tyr Ala Arg Tyr His Gly Ile Asp Val Ala	
225	230 235 240
Ala Asn Gln Glu Lys Ala Asn Trp Ile Glu Leu Leu Lys Thr Ala Pro	
	245 250 255
Lys Ala Phe Trp Thr Val Thr Leu Val Gln Phe Phe Cys Trp Phe Ala	
	260 265 270
Phe Gln Tyr Met Trp Thr Tyr Ser Ala Gly Ala Ile Ala Glu Asn Val	
	275 280 285
Trp His Thr Thr Asp Ala Ser Ser Val Gly Tyr Gln Glu Ala Gly Asn	
	290 295 300
Trp Tyr Gly Val Leu Ala Ala Val Gln Ser Val Ala Ala Val Ile Cys	
305	310 315 320
Ser Phe Val Leu Ala Lys Val Pro Asn Lys Tyr His Lys Ala Gly Tyr	
	325 330 335
Phe Gly Cys Leu Ala Leu Gly Ala Leu Gly Phe Phe Ser Val Phe Phe	
	340 345 350
Ile Gly Asn Gln Tyr Ala Leu Val Leu Ser Tyr Thr Leu Ile Gly Ile	
	355 360 365
Ala Trp Ala Gly Ile Ile Thr Tyr Pro Leu Thr Ile Val Thr Asn Ala	
	370 375 380
Leu Ser Gly Lys His Met Gly Thr Tyr Leu Gly Leu Phe Asn Gly Ser	
385	390 395 400
Ile Cys Met Pro Gln Ile Val Ala Ser Leu Leu Ser Phe Val Leu Phe	
	405 410 415

Pro Met Leu Gly Gly Leu Gln Ala Thr Met Phe Leu Val Gly Gly Val
 420 425 430

Val Leu Leu Leu Gly Ala Phe Ser Val Phe Leu Ile Lys Glu Thr His
 435 440 445

Gly Gly Val
 450

<210> 151
 <211> 1356
 <212> DNA
 <213> Neisseria meningitidis

<400> 151
 atgtcggaa atacgcctca aacagcaaaa caaggtttgc ccgcgctggc aaaaagcacg 60
 atttggaatc tcagtttcgg ctttctcggc gttcagacgg cctttaccct gcaaagctcg 120
 cagatgagcc gcatcttcca gacgctcggg gccgatccgc acagcctcgg ctgggttcttt 180
 atcctgccgc cgctggcggg gatgctgggt cagccgattg tcggccatta ctccgaccgc 240
 acttggaagc cgcgtttggg cggccgcgct tcgccgatc tgctttatgg cagcgtgatt 300
 gcggttattg tgatgatttt gatgccgaac tcgggcagct tcgggttcgg ctatgcgtcg 360
 ctggcggcct tgctggtcgg cgcgctgatg attgcgctgt tagacgtgtc gtcaaatatg 420
 gcgatgcagc cgtttaagat gatggtcggc gacatgggtc acgaggagca gaaaggctac 480
 gcctacggga ttcaaagttt cttagcgaat acgggcgcgg tcgtggcggc gattctgccg 540
 tttgtgtttg cgtatatcgg tttggcgaac accgccgaga aaggcgttgt gccgcagacc 600
 gtggctcgtg cgttttatgt ggggtgcggcg ttgctgggtg ttaccagcgc gttcacgatt 660
 ttcaaagtga aggaatacaa tccggaacc tacgcccggt accacggcat cgatgtcgcc 720
 gcgaatcagg aaaaagccaa ctggatcgaa ctcttgaaaa ccgcgcctaa ggcgttttgg 780
 acggttactt tgggtgcaatt cttctgctgg ttgccttcc aatatatgtg gacttactcg 840
 gcaggcgcga ttgcggaaaa cgtctggcac accaccgatg cgtcttccgt aggttatcag 900
 gaggcgggta actggtacgg cgttttggcg gcggtgcagt cgggtgcggc ggtgatttgt 960
 tcgtttgtat tggcgaaagt gccgaataaa taccataagg cgggttatatt cggctgtttg 1020
 gctttgggcg cgctcggcct tttctccgtt ttcttcatcg gcaaccaata cgcgctgggtg 1080
 ttgtcttata ccttaatcgg catcgcttgg gcgggcatta tcacttatcc gctgacgatt 1140
 gtgaccaacg ccttgctcggg caagcatatg ggcacttact tgggcctgtt taacggctct 1200
 atctgtatgc cgcaaategt cgcttcgctg ttgagtttcg tgcttttccc tatgctgggc 1260
 ggcttgaggc ccactatgtt cttggtaggg ggcgtcgtcc tgctgctggg cgcgttttcc 1320
 gtgttcctga ttaaagaaac acacggcggg gtttga 1356

<210> 152
 <211> 451
 <212> PRT
 <213> Neisseria meningitidis

<400> 152
 Met Ser Glu Tyr Thr Pro Gln Thr Ala Lys Gln Gly Leu Pro Ala Leu
 1 5 10 15
 Ala Lys Ser Thr Ile Trp Met Leu Ser Phe Gly Phe Leu Gly Val Gln
 20 25 30
 Thr Ala Phe Thr Leu Gln Ser Ser Gln Met Ser Arg Ile Phe Gln Thr
 35 40 45
 Leu Gly Ala Asp Pro His Ser Leu Gly Trp Phe Phe Ile Leu Pro Pro
 50 55 60

Leu	Ala	Gly	Met	Leu	Val	Gln	Pro	Ile	Val	Gly	His	Tyr	Ser	Asp	Arg	
65					70					75					80	
Thr	Trp	Lys	Pro	Arg	Leu	Gly	Gly	Arg	Arg	Leu	Pro	Tyr	Leu	Leu	Tyr	
				85					90					95		
Gly	Thr	Leu	Ile	Ala	Val	Ile	Val	Met	Ile	Leu	Met	Pro	Asn	Ser	Gly	
			100					105					110			
Ser	Phe	Gly	Phe	Gly	Tyr	Ala	Ser	Leu	Ala	Ala	Leu	Ser	Phe	Gly	Ala	
		115					120					125				
Leu	Met	Ile	Ala	Leu	Leu	Asp	Val	Ser	Ser	Asn	Met	Ala	Met	Gln	Pro	
	130					135					140					
Phe	Lys	Met	Met	Val	Gly	Asp	Met	Val	Asn	Glu	Glu	Gln	Lys	Gly	Tyr	
145					150					155					160	
Ala	Tyr	Gly	Ile	Gln	Ser	Phe	Leu	Ala	Asn	Thr	Gly	Ala	Val	Val	Ala	
				165					170					175		
Ala	Ile	Leu	Pro	Phe	Val	Phe	Ala	Tyr	Ile	Gly	Leu	Ala	Asn	Thr	Ala	
			180					185					190			
Glu	Lys	Gly	Val	Val	Pro	Gln	Thr	Val	Val	Val	Ala	Phe	Tyr	Val	Gly	
		195					200					205				
Ala	Ala	Leu	Leu	Val	Ile	Thr	Ser	Ala	Phe	Thr	Ile	Phe	Lys	Val	Lys	
	210					215					220					
Glu	Tyr	Asn	Pro	Glu	Thr	Tyr	Ala	Arg	Tyr	His	Gly	Ile	Asp	Val	Ala	
225					230					235					240	
Ala	Asn	Gln	Glu	Lys	Ala	Asn	Trp	Ile	Glu	Leu	Leu	Lys	Thr	Ala	Pro	
				245					250					255		
Lys	Ala	Phe	Trp	Thr	Val	Thr	Leu	Val	Gln	Phe	Phe	Cys	Trp	Phe	Ala	
			260					265					270			
Phe	Gln	Tyr	Met	Trp	Thr	Tyr	Ser	Ala	Gly	Ala	Ile	Ala	Glu	Asn	Val	
		275					280					285				
Trp	His	Thr	Thr	Asp	Ala	Ser	Ser	Val	Gly	Tyr	Gln	Glu	Ala	Gly	Asn	
	290					295					300					
Trp	Tyr	Gly	Val	Leu	Ala	Ala	Val	Gln	Ser	Val	Ala	Ala	Val	Ile	Cys	
305					310					315					320	
Ser	Phe	Val	Leu	Ala	Lys	Val	Pro	Asn	Lys	Tyr	His	Lys	Ala	Gly	Tyr	
				325					330					335		
Phe	Gly	Cys	Leu	Ala	Leu	Gly	Ala	Leu	Gly	Phe	Phe	Ser	Val	Phe	Phe	
			340					345					350			
Ile	Gly	Asn	Gln	Tyr	Ala	Leu	Val	Leu	Ser	Tyr	Thr	Leu	Ile	Gly	Ile	
		355					360					365				

Ala Trp Ala Gly Ile Ile Thr Tyr Pro Leu Thr Ile Val Thr Asn Ala
370 375 380

Leu Ser Gly Lys His Met Gly Thr Tyr Leu Gly Leu Phe Asn Gly Ser
385 390 395 400

Ile Cys Met Pro Gln Ile Val Ala Ser Leu Leu Ser Phe Val Leu Phe
405 410 415

Pro Met Leu Gly Gly Leu Gln Ala Thr Met Phe Leu Val Gly Gly Val
420 425 430

Val Leu Leu Leu Gly Ala Phe Ser Val Phe Leu Ile Lys Glu Thr His
435 440 445

Gly Gly Val
450

<210> 153
<211> 1020
<212> DNA
<213> Neisseria gonorrhoeae

<400> 153
atgatagggg atcgccgccc cggcaaccat ttcggatttt ccaaagcaaa tacttttcaa 60
atcaaaaaaa aggatttact ttatgtcggg atatacgccct caaacagcaa aacaagggttt 120
gcccgcgccc gcaaaaagca cgatttggat gttgagcttc ggctatctcg gcgttcagac 180
ggcctttacc ctgcaaagct cgcagatgag ccgcattttt caaacgctag gcgcagaccc 240
gcacaatttg ggctgggttt tcatcctgcc gccgctggcg gggatgctgg ttcagccgat 300
agtggctact actcagaccg cacttggaag ccgcgcttgg gcggccgccc cctgccgtat 360
ctgctttacg gcacgctgat tgcggtcacg gtgatgattt tgatgccgaa ctcgggcagc 420
ttcggtttcg gctatgcgtc gctggcggcc ttgtcgcttc gcgcgctgat gattgcgctg 480
ttggacgtgt cgtcgaatat ggcatgacag ccgtttaaga tgatggtcgg cgatatggtc 540
aacgaggagc agaaaagcta cgcctacggg attcaaagtt tcttagcgaa tacggacgcg 600
gttggtggcag cgattctgcc gtttgtgttc gcgtatatcg gtttggcgaa cactgccgag 660
aaaggcgttg tgccacaaac cgtggctgta gcattctatg tgggtgcggc gttactgatt 720
attaccagtg cgttcacaat ctccaaagtc aaagaatagc acccggaac ctacgccgt 780
taccacggca tcgatgtcgc cgcgaatcag gaaaaagcca actggttcga actcttaaaa 840
accgcgccta aagtgttttg gacggttact ccggtacagt ttttctgctg gttcgccttc 900
cggatatatg ggacttactc ggcaggcgcg attgcagaaa acgtctggca cactaccgat 960
gcgtcttccg taggccatca ggaggcgggc aaccggtacg gcgttttggc ggcgggtgtag 1020

<210> 154
<211> 339
<212> PRT
<213> Neisseria gonorrhoeae

<400> 154
Met Ile Gly Asp Arg Arg Ala Gly Asn His Phe Gly Phe Ser Lys Ala
1 5 10 15
Asn Thr Phe Gln Ile Lys Lys Lys Asp Leu Leu Tyr Val Gly Ile Tyr
20 25 30
Ala Ser Asn Ser Lys Thr Arg Phe Ala Arg Ala Gly Lys Lys His Asp
35 40 45

Leu Asp Val Glu Leu Arg Leu Ser Arg Arg Ser Asp Gly Leu Tyr Pro
 50 55 60
 Ala Lys Leu Ala Asp Glu Pro His Phe Ser Asn Ala Arg Arg Arg Pro
 65 70 75 80
 Ala Gln Phe Gly Leu Val Phe His Pro Ala Ala Ala Gly Gly Asp Ala
 85 90 95
 Gly Ser Ala Asp Ser Gly Tyr Tyr Ser Asp Arg Thr Trp Lys Pro Arg
 100 105 110
 Leu Gly Gly Arg Arg Leu Pro Tyr Leu Leu Tyr Gly Thr Leu Ile Ala
 115 120 125
 Val Ile Val Met Ile Leu Met Pro Asn Ser Gly Ser Phe Gly Phe Gly
 130 135 140
 Tyr Ala Ser Leu Ala Ala Leu Ser Phe Gly Ala Leu Met Ile Ala Leu
 145 150 155 160
 Leu Asp Val Ser Ser Asn Met Ala Met Gln Pro Phe Lys Met Met Val
 165 170 175
 Gly Asp Met Val Asn Glu Glu Gln Lys Ser Tyr Ala Tyr Gly Ile Gln
 180 185 190
 Ser Phe Leu Ala Asn Thr Asp Ala Val Val Ala Ala Ile Leu Pro Phe
 195 200 205
 Val Phe Ala Tyr Ile Gly Leu Ala Asn Thr Ala Glu Lys Gly Val Val
 210 215 220
 Pro Gln Thr Val Val Val Ala Phe Tyr Val Gly Ala Ala Leu Leu Ile
 225 230 235 240
 Ile Thr Ser Ala Phe Thr Ile Ser Lys Val Lys Glu Tyr Asp Pro Glu
 245 250 255
 Thr Tyr Ala Arg Tyr His Gly Ile Asp Val Ala Ala Asn Gln Glu Lys
 260 265 270
 Ala Asn Trp Phe Glu Leu Leu Lys Thr Ala Pro Lys Val Phe Trp Thr
 275 280 285
 Val Thr Pro Val Gln Phe Phe Cys Trp Phe Ala Phe Arg Tyr Met Trp
 290 295 300
 Thr Tyr Ser Ala Gly Ala Ile Ala Glu Asn Val Trp His Thr Thr Asp
 305 310 315 320
 Ala Ser Ser Val Gly His Gln Glu Ala Gly Asn Arg Tyr Gly Val Leu
 325 330 335
 Ala Ala Val

<210> 155
 <211> 358
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (111)..(111)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (122)..(122)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (138)..(138)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (140)..(140)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (243)..(243)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (251)..(251)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (259)..(259)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (291)..(291)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (344)..(344)
 <223> N= Unknown

<400> 155
 atgttggtcc gtaaaacgac cgccgcccgtt ttggcgcata ccttgatgct gaacggctgt 60
 acgttgatgt tgtggggaat gaacaacccg gtcagcgaaa caatcacccg naaacacggt 120
 gncaaagacc aaatccgn gn cttcggtgtg gttgccgaag acaatgccca attggaaaag 180
 ggcagcctgg tgatgatggg cggaaaatac tggttcgtcg tcaatcccga agattcggcg 240
 aantgacggg nattttgang gcagggctgg acaaaccctt ccaaatagtt naggataccc 300

cgagctatgc tgccaccaag ccctgccggt caaactcgga tcgnetggca gccagaat

358

<210> 156
<211> 120
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (41)..(41)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (47)..(47)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (81)..(82)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (87)..(87)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (98)..(98)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (104)..(104)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (116)..(116)
<223> Xaa= any amino acid

<400> 156
Met Leu Phe Arg Lys Thr Thr Ala Ala Val Leu Ala His Thr Leu Met
1 5 10 15
Leu Asn Gly Cys Thr Leu Met Leu Trp Gly Met Asn Asn Pro Val Ser
20 25 30
Glu Thr Ile Thr Arg Lys His Val Xaa Lys Asp Gln Ile Arg Xaa Phe
35 40 45
Gly Val Val Ala Glu Asp Asn Ala Gln Leu Glu Lys Gly Ser Leu Val
50 55 60
Met Met Gly Gly Lys Tyr Trp Phe Val Val Asn Pro Glu Asp Ser Ala

Leu Glu Ser Pro Gly Ser Gln Asn Phe Ser Thr Glu Gly Leu Cys Leu
115 120 125

Arg Tyr Asp Thr Asp Lys Pro Ala Asp Ile Ala Lys Leu Lys Gln Leu
130 135 140

Gly Phe Glu Ala Val Lys Leu Asp Asn Arg Thr Ile Tyr Thr Arg Cys
145 150 155 160

Val Ser Ala Lys Gly Lys Tyr Tyr Ala Thr Pro Gln Lys Leu Asn Ala
165 170 175

Asp Tyr His Phe Glu Gln Ser Val Pro Ala Asp Ile Tyr Tyr Thr Val
180 185 190

Thr Glu Glu His Thr Asp Lys Ser Lys Leu Phe Ala Asn Ile Leu Tyr
195 200 205

Thr Pro Pro Phe Leu Ile Leu Asp Ala Ala Gly Ala Val Leu Ala Leu
210 215 220

Pro Ala Ala Ala Leu Gly Ala Val Val Asp Ala Ala Arg Lys
225 230 235

<210> 159

<211> 714

<212> DNA

<213> Neisseria meningitidis

<400> 159

atgttggttc	gtaaaacgac	cgccgcggtt	ttggcgga	ccttgatgtt	gaacggctgt	60
acggtaatga	tgtggggtat	gaacagcccc	ttcagcgaaa	cgaccgcccc	caaacacgtt	120
gacaaggacc	aaatccgcgc	cttcggtgtg	gttgccgaag	acaatgcca	attggaaaag	180
ggcagcctgg	tgatgatggg	cggaataac	tggttcgtcg	tcaatcctga	agattcggcg	240
aagctgacgg	gcattttgaa	ggccgggttg	gacaagcagt	ttcaaagggt	tgagcccaac	300
ccgcgctttg	cctaccaagc	cctgcccgtc	aaactcgaat	cgcccgccag	ccagaatttc	360
agtaccgaag	gcctttgcct	gcgtacgat	accgacagac	ctgccgacat	cgccaagctg	420
aaacagcttg	agtttgaagc	ggtcgaactc	gacaatcgga	ccatttacac	gcgctgcgtc	480
tccgccaag	gcaaatacta	cgccacaccg	caaaaactga	acgccgatta	tcattttgag	540
caaagtgtgc	ctgccgatat	ttattacacg	gttacgaaaa	aacataccga	caaatccaag	600
ttgtttgaaa	atattgcata	tacgccacc	acgttgatac	tggatgcggt	gggcgcggtg	660
ctggccttgc	ctgtcgcggc	gttgattgca	gccacgaatt	cctcagacaa	atga	714

<210> 160

<211> 237

<212> PRT

<213> Neisseria meningitidis

<400> 160

Met Leu Phe Arg Lys Thr Thr Ala Ala Val Leu Ala Ala Thr Leu Met
1 5 10 15

Leu Asn Gly Cys Thr Val Met Met Trp Gly Met Asn Ser Pro Phe Ser
20 25 30

Glu Thr Thr Ala Arg Lys His Val Asp Lys Asp Gln Ile Arg Ala Phe

35	40	45
Gly Val Val Ala Glu Asp Asn Ala Gln Leu Glu Lys Gly Ser Leu Val 50	55	60
Met Met Gly Gly Lys Tyr Trp Phe Val Val Asn Pro Glu Asp Ser Ala 65	70	75 80
Lys Leu Thr Gly Ile Leu Lys Ala Gly Leu Asp Lys Gln Phe Gln Met 85	90	95
Val Glu Pro Asn Pro Arg Phe Ala Tyr Gln Ala Leu Pro Val Lys Leu 100	105	110
Glu Ser Pro Ala Ser Gln Asn Phe Ser Thr Glu Gly Leu Cys Leu Arg 115	120	125
Tyr Asp Thr Asp Arg Pro Ala Asp Ile Ala Lys Leu Lys Gln Leu Glu 130	135	140
Phe Glu Ala Val Glu Leu Asp Asn Arg Thr Ile Tyr Thr Arg Cys Val 145	150	155 160
Ser Ala Lys Gly Lys Tyr Tyr Ala Thr Pro Gln Lys Leu Asn Ala Asp 165	170	175
Tyr His Phe Glu Gln Ser Val Pro Ala Asp Ile Tyr Tyr Thr Val Thr 180	185	190
Lys Lys His Thr Asp Lys Ser Lys Leu Phe Glu Asn Ile Ala Tyr Thr 195	200	205
Pro Thr Thr Leu Ile Leu Asp Ala Val Gly Ala Val Leu Ala Leu Pro 210	215	220
Val Ala Ala Leu Ile Ala Ala Thr Asn Ser Ser Asp Lys 225	230	235

<210> 161
 <211> 714
 <212> DNA
 <213> *Neisseria gonorrhoeae*

<400> 161						
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acgatgatgt	tgcgggggat	gaacaacccg	gtcagccaaa	caatcacccg	caaacacgtt	120
gacaaagacc	aaatccgcgc	cttcgggtgtg	gttgccgaag	acaatgccca	attggaaaag	180
ggcagcctgg	tgatgatggg	cgggaaatac	tggttcgccg	tcaatcccga	agattcggcg	240
aagctgacgg	gccttttgaa	ggccgggttg	gacaagccct	tccaaatagt	tgaggatacc	300
ccgagctatg	cccgccacca	agccctgccg	gtcaaattcg	aagcgcccgg	cagccagaat	360
ttcagtaccg	gaggtccttg	cctgcgctat	gataccggca	gacctgacga	catcgccaag	420
ctgaaacagc	ttgagtttaa	agcgggtcaa	ctcgacaatc	ggaccattta	cacgcgctgc	480
gtatccgcca	aaggcaaata	ctacgccacg	ccgcaaaaac	tgaacgccga	ttatcatttt	540
gagcaaagtg	tgcccgccga	tatttattat	acggttactg	aaaaacatac	cgacaaatcc	600
aagctgtttg	gaaatatctt	atatacgccc	cccttggtga	tattggatgc	ggcggccgcg	660
gtgctggtct	tgccatggc	tctgattgca	gccgcgaatt	cctcagacaa	atga	714

<210> 162
<211> 237
<212> PRT
<213> Neisseria meningitidis

<400> 162
Met Leu Phe Arg Lys Thr Thr Ala Ala Val Leu Ala Ala Thr Leu Ile
1 5 10 15
Leu Asn Gly Cys Thr Met Met Leu Arg Gly Met Asn Asn Pro Val Ser
20 25 30
Gln Thr Ile Thr Arg Lys His Val Asp Lys Asp Gln Ile Arg Ala Phe
35 40 45
Gly Val Val Ala Glu Asp Asn Ala Gln Leu Glu Lys Gly Ser Leu Val
50 55 60
Met Met Gly Gly Lys Tyr Trp Phe Ala Val Asn Pro Glu Asp Ser Ala
65 70 75 80
Lys Leu Thr Gly Leu Leu Lys Ala Gly Leu Asp Lys Pro Phe Gln Ile
85 90 95
Val Glu Asp Thr Pro Ser Tyr Ala Arg His Gln Ala Leu Pro Val Lys
100 105 110
Phe Glu Ala Pro Gly Ser Gln Asn Phe Ser Thr Gly Gly Leu Cys Leu
115 120 125
Arg Tyr Asp Thr Gly Arg Pro Asp Asp Ile Ala Lys Leu Lys Gln Leu
130 135 140
Glu Phe Lys Ala Val Lys Leu Asp Asn Arg Thr Ile Tyr Thr Arg Cys
145 150 155 160
Val Ser Ala Lys Gly Lys Tyr Tyr Ala Thr Pro Gln Lys Leu Asn Ala
165 170 175
Asp Tyr His Phe Glu Gln Ser Val Pro Ala Asp Ile Tyr Tyr Thr Val
180 185 190
Thr Glu Lys His Thr Asp Lys Ser Lys Leu Phe Gly Asn Ile Leu Tyr
195 200 205
Thr Pro Pro Leu Leu Ile Leu Asp Ala Ala Ala Ala Val Leu Val Leu
210 215 220
Pro Met Ala Leu Ile Ala Ala Ala Asn Ser Ser Asp Lys
225 230 235

<210> 163
<211> 374
<212> DNA
<213> Neisseria meningitidis

<400> 163
gtcagtcctg tactgcctat tacacacgaa cggacagggt ttgaagggtg tatcggttat 60
gaaacccatt tttcagggca cggacatgaa gtacacagtc cgttcgatca tcatgattca 120
aaaagcactt ctgatttcag cggcgggtgta gacggcgggt ttactgttta ccaacttcat 180
cgaacatggt cggaaatcca tccggaggat gaatatgacg ggccgcaagc agcgattatc 240
cgcccccgaggaggcaagg gatataataca gctattatgt caaaggaact tcaacaaaaa 300
caaagactag tattgtccct caagcccat tttcagaccg ttggctagaa gaaaatgccg 360
gtgccgcctc tgggt 374

<210> 164
<211> 125
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (79)..(79)
<223> Xaa= any amino acid

<400> 164
Val Ser Pro Val Leu Pro Ile Thr His Glu Arg Thr Gly Phe Glu Gly
1 5 10 15
Val Ile Gly Tyr Glu Thr His Phe Ser Gly His Gly His Glu Val His
20 25 30
Ser Pro Phe Asp His His Asp Ser Lys Ser Thr Ser Asp Phe Ser Gly
35 40 45
Gly Val Asp Gly Gly Phe Thr Val Tyr Gln Leu His Arg Thr Trp Ser
50 55 60
Glu Ile His Pro Glu Asp Glu Tyr Asp Gly Pro Gln Ala Ala Xaa Tyr
65 70 75 80
Pro Pro Pro Gly Gly Ala Arg Asp Ile Tyr Ser Tyr Tyr Val Lys Gly
85 90 95
Thr Ser Thr Lys Thr Lys Thr Ser Ile Val Pro Gln Ala Pro Phe Ser
100 105 110
Asp Arg Trp Leu Glu Glu Asn Ala Gly Ala Ala Ser Gly
115 120 125

<210> 165
<211> 1452
<212> DNA
<213> Neisseria meningitidis

<400> 165
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atccccatta gtcattgcgaa cggtttggat gcccgtttgc gcgatgatat gcaggcaaaa 120
cactacgaac cgggtggttaa ataccatctg tttggtaatg ctgcgcggcag tggttaaaaag 180
cgggttttacg ccgtccagac atttgatgca actgcgggtca gtcctgtact gcctattaca 240
cacgaacgga cagggtttga aggtgttatc ggttatgaaa cccatttttc agggcacgga 300
catgaagtac acagtccgtt cgatcatcat gattcaaaaa gcacttctga tttcagcggc 360

ggtgtagacg	gcggttttac	tgtttaccaa	cttcacgaa	cagggtcgga	aatccatccg	420
gaggatggat	atgacggggc	gcaaggcagc	gattatccgc	cccccgagg	agcaagggat	480
atatacagct	attatgtcaa	aggaacttca	acaaaaacaa	agactaatat	tgccctcaa	540
gccccatttt	cagaccgttg	gctaaaagaa	aatgccggtg	ccgcctctgg	tttttcagc	600
cgtgcggatg	aagcaggaaa	actgatatgg	gaaagcgacc	ccaataaaaa	ttggtgggct	660
aaccgtatgg	atgatgttcg	cggcacgtc	caagggtcgg	ttaatccttt	tttaatgggt	720
tttcaaggag	tagggattgg	ggcaattaca	gacagtgcag	taagcccgtt	cacagataca	780
gccgcgcagc	agactctaca	aggtattaat	gatttaggaa	aattaagtcc	ggaagcacia	840
cttgctgccg	cgagcctatt	acaggacagt	gcttttgccg	taaaagacgg	tatcaactct	900
gccaaacaat	gggctgatgc	ccatccaaat	ataacagcta	ctgcccacac	tgccctttcc	960
gcagcagagg	ccgcagggtac	ggtttgagaa	ggtaaaaaag	tagaacttaa	cccgaactaa	1020
tgggattggg	ttaaaaatac	cggttataaa	aaacctgctg	cccgcctaat	gcagacttta	1080
gatggggaga	tggcagggtg	gaataaacct	attaaatctt	taccacacag	tgccgctgaa	1140
aaaagaaaac	aaaattttga	gaagtttaat	agtaactgga	gttcagcaag	ttttgattca	1200
gtgcacaaaa	cactaactcc	caatgcacct	ggatttttaa	gtcctgataa	agttaaaact	1260
cgatacacta	gttttagatg	aaaaattaca	attataaaaag	ataacgaaaa	caactatttt	1320
agaatccatg	ataattcacg	aaaacagtat	cttgattcaa	atggtaatgc	tgtgaaaacc	1380
ggtaattttac	aaggtaagca	agcaaaaagat	tatttacaaac	aacaaaactca	tatcaggaac	1440
ttagacaaat	ga					1452

<210> 166

<211> 483

<212> PRT

<213> Neisseria meningitidis

<400> 166

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Ser	Leu	Leu	Gln	Ile	Pro	Ile	Ser	His	Ala	Asn	Gly	Leu	Asp	Ala	Arg
			20					25					30		

Leu	Arg	Asp	Asp	Met	Gln	Ala	Lys	His	Tyr	Glu	Pro	Gly	Gly	Lys	Tyr
		35					40						45		

His	Leu	Phe	Gly	Asn	Ala	Arg	Gly	Ser	Val	Lys	Lys	Arg	Val	Tyr	Ala
	50					55					60				

Val	Gln	Thr	Phe	Asp	Ala	Thr	Ala	Val	Ser	Pro	Val	Leu	Pro	Ile	Thr
65					70					75				80	

His	Glu	Arg	Thr	Gly	Phe	Glu	Gly	Val	Ile	Gly	Tyr	Glu	Thr	His	Phe
			85					90						95	

Ser	Gly	His	Gly	His	Glu	Val	His	Ser	Pro	Phe	Asp	His	His	Asp	Ser
		100						105					110		

Lys	Ser	Thr	Ser	Asp	Phe	Ser	Gly	Gly	Val	Asp	Gly	Gly	Phe	Thr	Val
		115					120					125			

Tyr	Gln	Leu	His	Arg	Thr	Gly	Ser	Glu	Ile	His	Pro	Glu	Asp	Gly	Tyr
	130					135					140				

Asp	Gly	Pro	Gln	Gly	Ser	Asp	Tyr	Pro	Pro	Pro	Gly	Gly	Ala	Arg	Asp
145					150					155					160

Ile	Tyr	Ser	Tyr	Tyr	Val	Lys	Gly	Thr	Ser	Thr	Lys	Thr	Lys	Thr	Asn
				165					170					175	
Ile	Val	Pro	Gln	Ala	Pro	Phe	Ser	Asp	Arg	Trp	Leu	Lys	Glu	Asn	Ala
			180					185					190		
Gly	Ala	Ala	Ser	Gly	Phe	Phe	Ser	Arg	Ala	Asp	Glu	Ala	Gly	Lys	Leu
		195					200					205			
Ile	Trp	Glu	Ser	Asp	Pro	Asn	Lys	Asn	Trp	Trp	Ala	Asn	Arg	Met	Asp
	210					215					220				
Asp	Val	Arg	Gly	Ile	Val	Gln	Gly	Ala	Val	Asn	Pro	Phe	Leu	Met	Gly
225					230					235					240
Phe	Gln	Gly	Val	Gly	Ile	Gly	Ala	Ile	Thr	Asp	Ser	Ala	Val	Ser	Pro
			245						250					255	
Val	Thr	Asp	Thr	Ala	Ala	Gln	Gln	Thr	Leu	Gln	Gly	Ile	Asn	Asp	Leu
		260						265					270		
Gly	Lys	Leu	Ser	Pro	Glu	Ala	Gln	Leu	Ala	Ala	Ala	Ser	Leu	Leu	Gln
		275					280					285			
Asp	Ser	Ala	Phe	Ala	Val	Lys	Asp	Gly	Ile	Asn	Ser	Ala	Lys	Gln	Trp
	290					295					300				
Ala	Asp	Ala	His	Pro	Asn	Ile	Thr	Ala	Thr	Ala	Gln	Thr	Ala	Leu	Ser
305					310					315					320
Ala	Ala	Glu	Ala	Ala	Gly	Thr	Val	Trp	Arg	Gly	Lys	Lys	Val	Glu	Leu
			325					330						335	
Asn	Pro	Thr	Lys	Trp	Asp	Trp	Val	Lys	Asn	Thr	Gly	Tyr	Lys	Lys	Pro
			340					345					350		
Ala	Ala	Arg	His	Met	Gln	Thr	Leu	Asp	Gly	Glu	Met	Ala	Gly	Gly	Asn
	355						360					365			
Lys	Pro	Ile	Lys	Ser	Leu	Pro	Asn	Ser	Ala	Ala	Glu	Lys	Arg	Lys	Gln
	370					375					380				
Asn	Phe	Glu	Lys	Phe	Asn	Ser	Asn	Trp	Ser	Ser	Ala	Ser	Phe	Asp	Ser
385					390					395					400
Val	His	Lys	Thr	Leu	Thr	Pro	Asn	Ala	Pro	Gly	Ile	Leu	Ser	Pro	Asp
			405					410						415	
Lys	Val	Lys	Thr	Arg	Tyr	Thr	Ser	Leu	Asp	Gly	Lys	Ile	Thr	Ile	Ile
		420					425						430		
Lys	Asp	Asn	Glu	Asn	Asn	Tyr	Phe	Arg	Ile	His	Asp	Asn	Ser	Arg	Lys
	435						440					445			
Gln	Tyr	Leu	Asp	Ser	Asn	Gly	Asn	Ala	Val	Lys	Thr	Gly	Asn	Leu	Gln
	450					455					460				

Gly Lys Gln Ala Lys Asp Tyr Leu Gln Gln Gln Thr His Ile Arg Asn
465 470 475 480

Leu Asp Lys

<210> 167
<211> 1449
<212> DNA
<213> Neisseria meningitidis

<220>
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<222> (8)..(8)
<223> N= Unknown

<220>
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<222> (53)..(53)
<223> N= Unknown

<220>
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<222> (66)..(66)
<223> N= Unknown

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<222> (488)..(489)
<223> N= Unknown

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<223> N= Unknown

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<223> N= Unknown

<220>
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<222> (822)..(822)
<223> N= Unknown

<220>
<221> misc_feature
<222> (969)..(969)
<223> N= Unknown

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<222> (1041)..(1041)
<223> N= Unknown

<220>
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<222> (1050)..(1050)
<223> N= Unknown

<220>
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<222> (1193)..(1197)
<223> N= Unknown

<220>
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<222> (1306)..(1306)
<223> N= Unknown

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<222> (1351)..(1351)
<223> N= Unknown

<220>
<221> misc_feature
<222> (1365)..(1365)
<223> N= Unknown

<400> 167
atgaattngc ctattcaaaa attcatgatg ctgtttgcag cagcaatatc gtngctgcaa 60
atcccnatta gtcatgcgaa cggtttggat gcccgtttgc gcgatgatat gcaggcaaaa 120
cactacgaac cgggtggtaa ataccatctg tttggtaatg ctcgcggcag tgttaaaaat 180
cgggtttacg ccgtccaaac atttgatgca actgcggtcg gcccatact gcctattaca 240
cacgaacgga caggatttga aggcattatc ggttatgaaa cccatttttc aggacatgga 300
catgaagtac acagtccgtt cgataatcat gattcaaaaa gcacttctga tttcagcggc 360
ggcgtagacg gtggttttac cgtttaccaa cttcatcgga cagggtcgga aatccatccg 420
gaggatggat atgacggggc gcaaggcagc gattatccgc cccccggagg agcaagggat 480
atatacannt antatgtcaa aggaacttca acaaaaacaa agagtaatat tgttccccga 540
gccccatttt cagaccgctg gctaaaagaa aatgccggtg ccgcctctgg ttttttcagc 600
cgtgctgatg aagcaggaaa actgatatgg gaaagcgacc ccaataaaaa ttggtgggct 660
aaccgtatgg atgatattcg cggcatcgtc caagggtcgg ttaatccttt tttaatgggt 720
tttcaaggag tagggattgg ggcaattaca gacagtgcag taagcccggc cacagatata 780
gccgcgcagc agactctaca aggtatnaat catttaggaa anttaagtcc cgaagcacia 840
cttgcggtcg caaccgcatt acaagacagt gcttttgcgg taaaagacgg tatcaattcc 900
gccagacaat gggctgatgc ccatccgaat ataactgcaa cagcccaaac tgcccttgcc 960
gtagcagang ccgcaactac ggtttggggc ggtaaaaaag tagaacttaa cccgaccaa 1020
tgggattggg ttaaaaatac nggctataa acacctgctg ttcgcacccat gcatactttg 1080
gatggggaaa tggccggtgg gaatagaccg cctaaatcta taacgtccaa cagcaaagca 1140
gatgcttcca cacaaccgtc tttaacaagc caactaattg gagaacaaat tannnnnggg 1200
catgcttata acaagcatgt cataagacaa caagaattta cggatttaaa tatcaattca 1260
ccagcagatt ttgctcggca tattgaaaat attgttagcc atccancaa tatgaaagag 1320
ttacctcgcg gtagaactgc gtattgggat nataaaacag ggacnatagt tatccgagat 1380
aaaaattctg acgatggagg tacagcattt agaccaacat caggtaaaaa atattatgat 1440
gatttatag 1449

<210> 168
<211> 482
<212> PRT
<213> Neisseria meningitidis

<220>
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 <222> (3)..(3)
 <223> Xaa= any amino acid

<220>
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 <222> (18)..(18)
 <223> Xaa= any amino acid

<220>
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 <222> (163)..(164)
 <223> Xaa= any amino acid

<220>
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 <222> (269)..(269)
 <223> Xaa= any amino acid

<220>
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 <222> (274)..(274)
 <223> Xaa= any amino acid

<220>
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 <222> (323)..(323)
 <223> Xaa= any amino acid

<220>
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 <222> (350)..(350)
 <223> Xaa= any amino acid

<220>
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 <222> (398)..(399)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (436)..(436)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (451)..(451)
 <223> Xaa= any amino acid

<400> 168
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 1 5 10 15
 Ser Xaa Leu Gln Ile Pro Ile Ser His Ala Asn Gly Leu Asp Ala Arg
 20 25 30

Leu	Arg	Asp	Asp	Met	Gln	Ala	Lys	His	Tyr	Glu	Pro	Gly	Gly	Lys	Tyr	35	40	45
His	Leu	Phe	Gly	Asn	Ala	Arg	Gly	Ser	Val	Lys	Asn	Arg	Val	Tyr	Ala	50	55	60
Val	Gln	Thr	Phe	Asp	Ala	Thr	Ala	Val	Gly	Pro	Ile	Leu	Pro	Ile	Thr	65	70	75
His	Glu	Arg	Thr	Gly	Phe	Glu	Gly	Ile	Ile	Gly	Tyr	Glu	Thr	His	Phe	85	90	95
Ser	Gly	His	Gly	His	Glu	Val	His	Ser	Pro	Phe	Asp	Asn	His	Asp	Ser	100	105	110
Lys	Ser	Thr	Ser	Asp	Phe	Ser	Gly	Gly	Val	Asp	Gly	Gly	Phe	Thr	Val	115	120	125
Tyr	Gln	Leu	His	Arg	Thr	Gly	Ser	Glu	Ile	His	Pro	Glu	Asp	Gly	Tyr	130	135	140
Asp	Gly	Pro	Gln	Gly	Ser	Asp	Tyr	Pro	Pro	Pro	Gly	Gly	Ala	Arg	Asp	145	150	155
Ile	Tyr	Xaa	Xaa	Tyr	Val	Lys	Gly	Thr	Ser	Thr	Lys	Thr	Lys	Ser	Asn	165	170	175
Ile	Val	Pro	Arg	Ala	Pro	Phe	Ser	Asp	Arg	Trp	Leu	Lys	Glu	Asn	Ala	180	185	190
Gly	Ala	Ala	Ser	Gly	Phe	Phe	Ser	Arg	Ala	Asp	Glu	Ala	Gly	Lys	Leu	195	200	205
Ile	Trp	Glu	Ser	Asp	Pro	Asn	Lys	Asn	Trp	Trp	Ala	Asn	Arg	Met	Asp	210	215	220
Asp	Ile	Arg	Gly	Ile	Val	Gln	Gly	Ala	Val	Asn	Pro	Phe	Leu	Met	Gly	225	230	235
Phe	Gln	Gly	Val	Gly	Ile	Gly	Ala	Ile	Thr	Asp	Ser	Ala	Val	Ser	Pro	245	250	255
Val	Thr	Asp	Thr	Ala	Ala	Gln	Gln	Thr	Leu	Gln	Gly	Xaa	Asn	His	Leu	260	265	270
Gly	Xaa	Leu	Ser	Pro	Glu	Ala	Gln	Leu	Ala	Ala	Ala	Thr	Ala	Leu	Gln	275	280	285
Asp	Ser	Ala	Phe	Ala	Val	Lys	Asp	Gly	Ile	Asn	Ser	Ala	Arg	Gln	Trp	290	295	300
Ala	Asp	Ala	His	Pro	Asn	Ile	Thr	Ala	Thr	Ala	Gln	Thr	Ala	Leu	Ala	305	310	315
Val	Ala	Xaa	Ala	Ala	Thr	Thr	Val	Trp	Gly	Gly	Lys	Lys	Val	Glu	Leu	325	330	335

Asn Pro Thr Lys Trp Asp Trp Val Lys Asn Thr Gly Tyr Xaa Thr Pro
 340 345 350
 Ala Val Arg Thr Met His Thr Leu Asp Gly Glu Met Ala Gly Gly Asn
 355 360 365
 Arg Pro Pro Lys Ser Ile Thr Ser Asn Ser Lys Ala Asp Ala Ser Thr
 370 375 380
 Gln Pro Ser Leu Gln Ala Gln Leu Ile Gly Glu Gln Ile Xaa Xaa Gly
 385 390 395 400
 His Ala Tyr Asn Lys His Val Ile Arg Gln Gln Glu Phe Thr Asp Leu
 405 410 415
 Asn Ile Asn Ser Pro Ala Asp Phe Ala Arg His Ile Glu Asn Ile Val
 420 425 430
 Ser His Pro Xaa Asn Met Lys Glu Leu Pro Arg Gly Arg Thr Ala Tyr
 435 440 445
 Trp Asp Xaa Lys Thr Gly Thr Ile Val Ile Arg Asp Lys Asn Ser Asp
 450 455 460
 Asp Gly Gly Thr Ala Phe Arg Pro Thr Ser Gly Lys Lys Tyr Tyr Asp
 465 470 475 480

Asp Leu

<210> 169
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 169
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8

<210> 170
 <211> 468
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 170
 Met Asn Leu Pro Ile Gln Lys Phe Met Met Leu Phe Ala Ala Ala Ile
 1 5 10 15

Ser Leu Leu Gln Ile Pro Ile Ser His Ala Asn Gly Leu Asp Ala Arg
 20 25 30

Leu Arg Asp Asp Met Gln Ala Lys His Tyr Glu Pro Gly Gly Lys Tyr

35					40					45					
His	Leu	Phe	Gly	Asn	Ala	Arg	Gly	Ser	Val	Lys	Asn	Arg	Val	Cys	Ala
50					55					60					
Val	Gln	Thr	Phe	Asp	Ala	Thr	Ala	Val	Gly	Pro	Ile	Leu	Pro	Ile	Thr
65					70					75					80
His	Glu	Arg	Thr	Gly	Phe	Glu	Gly	Val	Ile	Gly	Tyr	Glu	Thr	His	Phe
				85					90					95	
Ser	Gly	His	Gly	His	Glu	Val	His	Ser	Pro	Phe	Asp	Asn	His	Asp	Ser
			100					105					110		
Lys	Ser	Thr	Ser	Asp	Phe	Ser	Gly	Gly	Val	Asp	Gly	Gly	Phe	Thr	Val
			115				120					125			
Tyr	Gln	Leu	His	Arg	Thr	Gly	Ser	Glu	Ile	His	Pro	Glu	Asp	Gly	Tyr
	130				135					140					
Asp	Gly	Pro	Gln	Gly	Gly	Gly	Tyr	Pro	Pro	Pro	Gly	Gly	Ala	Arg	Asp
145				150					155						160
Ile	Tyr	Ser	Tyr	His	Ile	Lys	Gly	Thr	Ser	Thr	Lys	Thr	Lys	Ile	Asn
				165					170					175	
Thr	Val	Pro	Gln	Ala	Pro	Phe	Ser	Asp	Arg	Trp	Leu	Lys	Glu	Asn	Ala
			180					185					190		
Gly	Ala	Ala	Ser	Gly	Phe	Leu	Ser	Arg	Ala	Asp	Glu	Ala	Gly	Lys	Leu
	195						200					205			
Ile	Trp	Glu	Asn	Asp	Pro	Asp	Lys	Asn	Trp	Arg	Ala	Asn	Arg	Met	Asp
	210					215					220				
Asp	Ile	Arg	Gly	Ile	Val	Gln	Gly	Ala	Val	Asn	Pro	Phe	Leu	Thr	Gly
225				230						235					240
Phe	Gln	Gly	Leu	Gly	Val	Gly	Ala	Ile	Thr	Asp	Ser	Ala	Val	Ser	Pro
			245						250					255	
Val	Thr	Tyr	Ala	Ala	Ala	Arg	Lys	Thr	Leu	Gln	Gly	Ile	His	Asn	Leu
			260					265					270		
Gly	Asn	Leu	Ser	Pro	Glu	Ala	Gln	Leu	Ala	Ala	Ala	Thr	Ala	Leu	Gln
	275						280					285			
Asp	Ser	Ala	Phe	Ala	Val	Lys	Asp	Ser	Ile	Asn	Ser	Ala	Arg	Gln	Trp
	290					295					300				
Ala	Asp	Ala	His	Pro	Asn	Ile	Thr	Ala	Thr	Ala	Gln	Thr	Ala	Leu	Ala
305				310					315					320	
Val	Thr	Glu	Ala	Ala	Thr	Thr	Val	Trp	Gly	Gly	Lys	Lys	Val	Glu	Leu
			325						330					335	

Asn Pro Ala Lys Trp Asp Trp Val Lys Asn Thr Gly Tyr Lys Lys Pro
340 345 350

Ala Ala Arg His Met Gln Thr Val Asp Gly Glu Met Ala Gly Gly Asn
355 360 365

Lys Pro Leu Glu Ser Lys Asn Thr Val Thr Thr Asn Asn Phe Phe Glu
370 375 380

Asn Thr Gly Tyr Thr Glu Lys Val Leu Arg Gln Ala Ser Asn Gly Asp
385 390 395 400

Tyr His Gly Phe Pro Gln Ser Val Asp Ala Phe Ser Glu Asn Gly Thr
405 410 415

Val Ile Gln Ile Val Gly Gly Asp Asn Ile Val Arg His Lys Leu Tyr
420 425 430

Ile Pro Gly Ser Tyr Lys Gly Lys Asp Gly Asn Phe Glu Tyr Ile Arg
435 440 445

Glu Ala Asp Gly Lys Ile Asn His Arg Leu Phe Val Pro Asn Gln Gln
450 455 460

Leu Pro Glu Lys
465

<210> 171

<211> 1497

<212> DNA

<213> Neisseria gonorrhoeae

<400> 171

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atccccatta	gtcatgcgaa	cggtttggat	gcccgtttgc	gcgatgatat	gcaggcaaaa	120
cactacgaac	cgggtggcaa	ataccatctg	tttggtaatg	ctcgcggcag	tggttaaaaat	180
cgggtttgcg	ccgtccaaac	atttgatgca	actgcggtcg	gccccatact	gcctattaca	240
cacgaacgga	caggatttga	aggtgttata	ggctatgaaa	ccattttttc	aggacacgga	300
cacgaagtac	acagtccgtt	cgataatcat	gattcaaaaa	gcactttctga	tttcagcggc	360
ggcgtagacg	gcggttttac	cgtttaccac	cttcatcgga	cagggtcgga	aatacatccc	420
gcagacggat	atgacggggc	tcaaggcggc	ggttatccgg	aaccacaagg	ggcaagggat	480
atatacagct	accatatcaa	aggaacttca	accaaacaac	agataaacac	tgttccgcaa	540
gccccttttt	cagaccgctg	gctaaaagaa	aatgccgggtg	ccgcttccgg	ttttctcagc	600
cgtgcggatg	aagcaggaaa	actgatatgg	gaaaacgacc	ccgataaaaa	ttggcgggct	660
aaccgtatgg	atgatattcg	cggcatcgtc	caaggtgcgg	ttaatccttt	tttaacgggt	720
tttcaagggg	tagggattgg	ggcaattaca	gacagtgcgg	taagcccggg	cacagatata	780
gccgctcagc	agactctaca	aggtattaat	gatttaggaa	atttaagtcc	ggaagcacia	840
cttgccgccg	cgagcctatt	acaggacagt	gcctttgcgg	taaaagacgg	catcaattcc	900
gccagacaat	gggctgatgc	ccatccgaat	ataacagcaa	cagcccaaac	tgcccttgcc	960
gtagcagagg	ccgcaggtac	ggtttggcgc	ggtaaaaaag	tagaacttaa	cccagacaaa	1020
tgggattggg	ttaaaaatac	cggctataaa	aaacctgctg	cccgccatat	gcagactgta	1080
gatggggaga	tggcaggggg	gaatagaccg	cctaaatcta	taacgtcgga	aggaaaagct	1140
aatgctgcaa	cctatcctaa	gttggttaat	cagctaaatg	agcaaaactt	aaataacatt	1200
gcggctcaag	atccaagatt	gagtctagct	attcatgagg	gtaaaaaaa	ttttccaata	1260
ggaactgcaa	cttatgaaga	ggcagataga	ctaggtaaaa	tttgggttgg	tgagggtgca	1320
agacaaaacta	gtggaggcg	atggttaagt	agagatggca	ctcgacaata	tcggccacca	1380

acagaaaaaa aatcacaatt tgcaactaca ggtattcaag caaattttga aacttatact 1440
 attgattcaa atgaaaaaag aaataaaaatt aaaaatggac atttaaatat taggtaa 1497

<210> 172
 <211> 498
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 172
 Met Asn Leu Pro Ile Gln Lys Phe Met Met Leu Leu Ala Ala Ala Ile
 1 5 10 15
 Ser Met Leu His Ile Pro Ile Ser His Ala Asn Gly Leu Asp Ala Arg
 20 25 30
 Leu Arg Asp Asp Met Gln Ala Lys His Tyr Glu Pro Gly Gly Lys Tyr
 35 40 45
 His Leu Phe Gly Asn Ala Arg Gly Ser Val Lys Asn Arg Val Cys Ala
 50 55 60
 Val Gln Thr Phe Asp Ala Thr Ala Val Gly Pro Ile Leu Pro Ile Thr
 65 70 75 80
 His Glu Arg Thr Gly Phe Glu Gly Val Ile Gly Tyr Glu Thr His Phe
 85 90 95
 Ser Gly His Gly His Glu Val His Ser Pro Phe Asp Asn His Asp Ser
 100 105 110
 Lys Ser Thr Ser Asp Phe Ser Gly Gly Val Asp Gly Gly Phe Thr Val
 115 120 125
 Tyr Gln Leu His Arg Thr Gly Ser Glu Ile His Pro Ala Asp Gly Tyr
 130 135 140
 Asp Gly Pro Gln Gly Gly Gly Tyr Pro Glu Pro Gln Gly Ala Arg Asp
 145 150 155 160
 Ile Tyr Ser Tyr His Ile Lys Gly Thr Ser Thr Lys Thr Lys Ile Asn
 165 170 175
 Thr Val Pro Gln Ala Pro Phe Ser Asp Arg Trp Leu Lys Glu Asn Ala
 180 185 190
 Gly Ala Ala Ser Gly Phe Leu Ser Arg Ala Asp Glu Ala Gly Lys Leu
 195 200 205
 Ile Trp Glu Asn Asp Pro Asp Lys Asn Trp Arg Ala Asn Arg Met Asp
 210 215 220
 Asp Ile Arg Gly Ile Val Gln Gly Ala Val Asn Pro Phe Leu Thr Gly
 225 230 235 240
 Phe Gln Gly Val Gly Ile Gly Ala Ile Thr Asp Ser Ala Val Ser Pro
 245 250 255

Val Thr Asp Thr Ala Ala Gln Gln Thr Leu Gln Gly Ile Asn Asp Leu
 260 265 270
 Gly Asn Leu Ser Pro Glu Ala Gln Leu Ala Ala Ala Ser Leu Leu Gln
 275 280 285
 Asp Ser Ala Phe Ala Val Lys Asp Gly Ile Asn Ser Ala Arg Gln Trp
 290 295 300
 Ala Asp Ala His Pro Asn Ile Thr Ala Thr Ala Gln Thr Ala Leu Ala
 305 310 315 320
 Val Ala Glu Ala Ala Gly Thr Val Trp Arg Gly Lys Lys Val Glu Leu
 325 330 335
 Asn Pro Thr Lys Trp Asp Trp Val Lys Asn Thr Gly Tyr Lys Lys Pro
 340 345 350
 Ala Ala Arg His Met Gln Thr Val Asp Gly Glu Met Ala Gly Gly Asn
 355 360 365
 Arg Pro Pro Lys Ser Ile Thr Ser Glu Gly Lys Ala Asn Ala Ala Thr
 370 375 380
 Tyr Pro Lys Leu Val Asn Gln Leu Asn Glu Gln Asn Leu Asn Asn Ile
 385 390 395 400
 Ala Ala Gln Asp Pro Arg Leu Ser Leu Ala Ile His Glu Gly Lys Lys
 405 410 415
 Asn Phe Pro Ile Gly Thr Ala Thr Tyr Glu Glu Ala Asp Arg Leu Gly
 420 425 430
 Lys Ile Trp Val Gly Glu Gly Ala Arg Gln Thr Ser Gly Gly Gly Trp
 435 440 445
 Leu Ser Arg Asp Gly Thr Arg Gln Tyr Arg Pro Pro Thr Glu Lys Lys
 450 455 460
 Ser Gln Phe Ala Thr Thr Gly Ile Gln Ala Asn Phe Glu Thr Tyr Thr
 465 470 475 480
 Ile Asp Ser Asn Glu Lys Arg Asn Lys Ile Lys Asn Gly His Leu Asn
 485 490 495

Ile Arg

<210> 173
 <211> 126
 <212> DNA
 <213> Neisseria meningitidis

<400> 173
 atgaaaaaac aaatcaccgc agccgtaatg atgctgtcta tgattgcccc cgcaatggca 60
 aacggcttgg acaatcaggc atttgaagac caaatgttcc acacgcgggc agatgcaccg 120

<210> 174
 <211> 42
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 174
 Met Lys Lys Gln Ile Thr Ala Ala Val Met Met Leu Ser Met Ile Ala
 1 5 10 15
 Pro Ala Met Ala Asn Gly Leu Asp Asn Gln Ala Phe Glu Asp Gln Met
 20 25 30
 Phe His Thr Arg Ala Asp Ala Pro Met Gln
 35 40

<210> 175
 <211> 546
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 175
 atgaaaaaac aaatcacgc agccgtaatg atgctgtcta tgattgcccc cgcaatggca 60
 aacggcttgg acaatcaggc atttgaagac caagtgttcc acacgcgggc agatgcaccg 120
 atgcagttgg cggagctttc tcaaaaggag atgaaggaga cagagggggc gtttcttcca 180
 ttggctatct tgggtggtgc tgccattggg atgtggacac agcatggttt tagttatgca 240
 acgacaggca gaccagcttc tgttagagat gttgctattg ctggcggatt aggcgcaatt 300
 cctgggtggtg taggcgccgc aggaaaggtt gtttcctttg ctaaatatgg acgtgagatt 360
 aaaatcggca ataatatgcg gatagcccct ttcggtaata gaacagggtca tcctattgga 420
 aaatttcccc attatcatcg tcgagttacg gataatacgg gcaagacttt gcctggacag 480
 ggaattggtc gtcatcgccc ttgggaatca aaatctacgg acagatcatg gaaaaaccgc 540
 ttctaa 546

<210> 176
 <211> 181
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 176
 Met Lys Lys Gln Ile Thr Ala Ala Val Met Met Leu Ser Met Ile Ala
 1 5 10 15
 Pro Ala Met Ala Asn Gly Leu Asp Asn Gln Ala Phe Glu Asp Gln Val
 20 25 30
 Phe His Thr Arg Ala Asp Ala Pro Met Gln Leu Ala Glu Leu Ser Gln
 35 40 45
 Lys Glu Met Lys Glu Thr Glu Gly Ala Phe Leu Pro Leu Ala Ile Leu
 50 55 60
 Gly Gly Ala Ala Ile Gly Met Trp Thr Gln His Gly Phe Ser Tyr Ala
 65 70 75 80
 Thr Thr Gly Arg Pro Ala Ser Val Arg Asp Val Ala Ile Ala Gly Gly

85

90

95

Leu Gly Ala Ile Pro Gly Gly Val Gly Ala Ala Gly Lys Val Val Ser
 100 105 110

Phe Ala Lys Tyr Gly Arg Glu Ile Lys Ile Gly Asn Asn Met Arg Ile
 115 120 125

Ala Pro Phe Gly Asn Arg Thr Gly His Pro Ile Gly Lys Phe Pro His
 130 135 140

Tyr His Arg Arg Val Thr Asp Asn Thr Gly Lys Thr Leu Pro Gly Gln
 145 150 155 160

Gly Ile Gly Arg His Arg Pro Trp Glu Ser Lys Ser Thr Asp Arg Ser
 165 170 175

Trp Lys Asn Arg Phe
 180

<210> 177
 <211> 546
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (159)..(159)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (164)..(164)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (185)..(185)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (308)..(308)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (420)..(420)
 <223> N= Unknown

<400> 177
 atgaaaaaac aaatcaccgc agccgtaatg atgctgtcta tgattgcccc cgcaatggca 60
 aacggcttgg acaatcaggc atttgaagac caagtgttcc acacgcgggc agatgcaccg 120
 atgcagttgg cggagctttc tcaaaaggag atgaaggana cagngggggc gtttcttcca 180
 ttgntatct tgggtggtgc tgccattggt atgtggacac agcatggttt tagttatgca 240
 acgacaggca gaccagcttc tgtagagat gttgctattg ctggcggatt aggcgcaatt 300

cctggtgntg taggcgccgc aggaaagggtt gtttcctttg ctaaatatgg acgtgagatt	360
aaaatcggca ataatatgcg gatagccctt ttcggtaata gaacagggtca tcctattggn	420
aaatttcccc attatcatcg tcgagttacg gataatcggg gcaagacttt gcctggacag	480
ggaattggtc gtcatcgccc ttgggaatca aaatctacgg acagatcatg gaaaaaccgc	540
ttctaa	546

<210> 178
 <211> 181
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (53)..(53)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (55)..(55)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (62)..(62)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (103)..(103)
 <223> Xaa= any amino acid

<400> 178
 Met Lys Lys Gln Ile Thr Ala Ala Val Met Met Leu Ser Met Ile Ala
 1 5 10 15
 Pro Ala Met Ala Asn Gly Leu Asp Asn Gln Ala Phe Glu Asp Gln Val
 20 25 30
 Phe His Thr Arg Ala Asp Ala Pro Met Gln Leu Ala Glu Leu Ser Gln
 35 40 45
 Lys Glu Met Lys Xaa Thr Xaa Gly Ala Phe Leu Pro Leu Xaa Ile Leu
 50 55 60
 Gly Gly Ala Ala Ile Gly Met Trp Thr Gln His Gly Phe Ser Tyr Ala
 65 70 75 80
 Thr Thr Gly Arg Pro Ala Ser Val Arg Asp Val Ala Ile Ala Gly Gly
 85 90 95
 Leu Gly Ala Ile Pro Gly Xaa Val Gly Ala Ala Gly Lys Val Val Ser
 100 105 110
 Phe Ala Lys Tyr Gly Arg Glu Ile Lys Ile Gly Asn Asn Met Arg Ile
 115 120 125

Ala Pro Phe Gly Asn Arg Thr Gly His Pro Ile Gly Lys Phe Pro His
130 135 140

Tyr His Arg Arg Val Thr Asp Asn Thr Gly Lys Thr Leu Pro Gly Gln
145 150 155 160

Gly Ile Gly Arg His Arg Pro Trp Glu Ser Lys Ser Thr Asp Arg Ser
165 170 175

Trp Lys Asn Arg Phe
180

<210> 179
<211> 540
<212> DNA
<213> Neisseria meningitidis

<400> 179
atgaaaaaac aaatcaccgc agccgtaatg atgctgtcta tgatcgcccc cgcaatggca 60
aacggattgg acaatcaggc atttgaagac caagtgttcc acacgcgggc agatgcgccg 120
atgcagttgg cggagctttc tcagaaggag atgaaggaga ctgaaggggc ttttcttcca 180
ttggctatct tgggtggtgc tgccattggt atgtggacac agcatggttt tagttatgca 240
acgacaggca gaccagcttc tgtagagat gttgctggcg gattaggcgc aattcctggt 300
gatgtaggtg ctgcaggaaa gggtgtttcc tttgctaaat atggacgtga gattaaaatc 360
ggcaataata tgcgtagatc ccctttcggg aatagaacag gtcacacctat tggaaaattt 420
ccccattatc atcgctcgagt tacggataat acgggcaaga ctttgcctgg acagggaatt 480
ggtcgctcatc gcccttggga atcaaaatct acggacagat catggaaaaa ccgcttctaa 540

<210> 180
<211> 179
<212> PRT
<213> Neisseria gonorrhoeae

<400> 180
Met Lys Lys Gln Ile Thr Ala Ala Val Met Met Leu Ser Met Ile Ala
1 5 10 15
Pro Ala Met Ala Asn Gly Leu Asp Asn Gln Ala Phe Glu Asp Gln Val
20 25 30
Phe His Thr Arg Ala Asp Ala Pro Met Gln Leu Ala Glu Leu Ser Gln
35 40 45
Lys Glu Met Lys Glu Thr Glu Gly Ala Phe Leu Pro Leu Ala Ile Leu
50 55 60
Gly Gly Ala Ala Ile Gly Met Trp Thr Gln His Gly Phe Ser Tyr Ala
65 70 75 80
Thr Thr Gly Arg Pro Ala Ser Val Arg Asp Val Ala Gly Gly Leu Gly
85 90 95
Ala Ile Pro Gly Asp Val Gly Ala Ala Gly Lys Val Val Ser Phe Ala
100 105 110
Lys Tyr Gly Arg Glu Ile Lys Ile Gly Asn Asn Met Arg Ile Ala Pro

115

120

125

Phe Gly Asn Arg Thr Gly His Pro Ile Gly Lys Phe Pro His Tyr His
 130 135 140

Arg Arg Val Thr Asp Asn Thr Gly Lys Thr Leu Pro Gly Gln Gly Ile
 145 150 155 160

Gly Arg His Arg Pro Trp Glu Ser Lys Ser Thr Asp Arg Ser Trp Lys
 165 170 175

Asn Arg Phe

<210> 181

<211> 251

<212> DNA

<213> Neisseria meningitidis

<400> 181

atgaataaaa ctctctatcg tgtaattttc aaccgcaaac gtggggctgt grtagccgtt 60
 gctgaaacta ccaagcgcgga aggtaaaagc tgtgccgata gtgattcagg cagcgctcat 120
 gtgaaatctg ttccttttgg tactactcat gcacctgttt gtgcgttaca aatatctttt 180
 ctttttcttt attgggcttt tctttatgtt tggctgtagg tacggycaat attgcttttg 240
 ctgatggcat t 251

<210> 182

<211> 84

<212> PRT

<213> Neisseria meningitidis

<220>

<221> misc_feature

<222> (18)..(18)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (55)..(55)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (76)..(76)

<223> Xaa= any amino acid

<400> 182

Met Asn Lys Thr Leu Tyr Arg Val Ile Phe Asn Arg Lys Arg Gly Ala
 1 5 10 15

Val Xaa Ala Val Ala Glu Thr Thr Lys Arg Glu Gly Lys Ser Cys Ala
 20 25 30

Asp Ser Asp Ser Gly Ser Ala His Val Lys Ser Val Pro Phe Gly Thr
 35 40 45

Thr His Ala Pro Val Cys Xaa Val Thr Asn Ile Phe Ser Phe Ser Leu
50 55 60

Leu Gly Phe Ser Leu Cys Leu Ala Val Gly Thr Xaa Asn Ile Ala Phe
65 70 75 80

Ala Asp Gly Ile

<210> 183
<211> 249
<212> DNA
<213> Neisseria meningitidis

<400> 183
atgaataaaa ctctctatcg tgtaattttc aaccgcaaac gtggggctgt ggtagccggt 60
gctgaaacta ccaagcgcgga aggtaaaagc tgtgccgata gtgattcagg cagcgctcat 120
gtgaaatctg ttcccttttg tactactcat gcacctgttt gtcgttcaaa tatcttttct 180
ttttctttat tgggcttttc tttatgtttg gctgtaggta cggccaatat tgcttttgct 240
gatggcatt 249

<210> 184
<211> 83
<212> PRT
<213> Neisseria meningitidis

<400> 184
Met Asn Lys Thr Leu Tyr Arg Val Ile Phe Asn Arg Lys Arg Gly Ala
1 5 10 15
Val Val Ala Val Ala Glu Thr Thr Lys Arg Glu Gly Lys Ser Cys Ala
20 25 30
Asp Ser Asp Ser Gly Ser Ala His Val Lys Ser Val Pro Phe Gly Thr
35 40 45
Thr His Ala Pro Val Cys Arg Ser Asn Ile Phe Ser Phe Ser Leu Leu
50 55 60
Gly Phe Ser Leu Cys Leu Ala Val Gly Thr Ala Asn Ile Ala Phe Ala
65 70 75 80

Asp Gly Ile

<210> 185
<211> 792
<212> PRT
<213> Neisseria gonorrhoeae

<400> 185
Ala Thr Gly Ala Ala Cys Ala Ala Ala Cys Cys Cys Thr Cys Thr
1 5 10 15
Ala Thr Cys Gly Thr Gly Thr Gly Ala Thr Thr Thr Thr Cys Ala Ala
20 25 30

Cys	Cys	Gly	Cys	Ala	Ala	Ala	Cys	Gly	Cys	Gly	Gly	Thr	Gly	Cys	Thr	35	40	45	
Gly	Thr	Gly	Gly	Thr	Ala	Gly	Cys	Thr	Gly	Thr	Thr	Gly	Cys	Cys	Gly	50	55	60	
Ala	Ala	Ala	Cys	Cys	Ala	Cys	Cys	Ala	Ala	Gly	Cys	Gly	Cys	Gly	Ala	65	70	75	80
Ala	Gly	Gly	Thr	Ala	Ala	Ala	Ala	Gly	Cys	Thr	Gly	Thr	Gly	Cys	Cys	85	90	95	
Gly	Ala	Thr	Ala	Gly	Thr	Gly	Gly	Thr	Thr	Cys	Gly	Gly	Gly	Cys	Ala	100	105	110	
Gly	Cys	Gly	Thr	Thr	Thr	Ala	Thr	Gly	Thr	Gly	Ala	Ala	Ala	Thr	Cys	115	120	125	
Cys	Gly	Thr	Thr	Thr	Cys	Thr	Thr	Thr	Cys	Ala	Thr	Thr	Cys	Cys	Thr	130	135	140	
Ala	Cys	Thr	Cys	Ala	Thr	Thr	Cys	Cys	Ala	Ala	Ala	Gly	Cys	Cys	Thr	145	150	155	160
Thr	Thr	Thr	Gly	Thr	Thr	Thr	Thr	Thr	Cys	Thr	Gly	Cys	Ala	Thr	Thr	165	170	175	
Ala	Gly	Gly	Cys	Thr	Thr	Thr	Thr	Cys	Thr	Thr	Thr	Ala	Thr	Gly	Thr	180	185	190	
Thr	Thr	Gly	Gly	Cys	Thr	Thr	Thr	Gly	Gly	Gly	Thr	Ala	Cys	Gly	Gly	195	200	205	
Thr	Cys	Ala	Ala	Thr	Ala	Thr	Thr	Gly	Cys	Thr	Thr	Thr	Thr	Gly	Cys	210	215	220	
Thr	Gly	Ala	Cys	Gly	Gly	Cys	Ala	Thr	Thr	Ala	Thr	Thr	Ala	Cys	Thr	225	230	235	240
Gly	Ala	Thr	Ala	Ala	Ala	Gly	Cys	Thr	Gly	Cys	Thr	Cys	Cys	Thr	Ala	245	250	255	
Ala	Ala	Ala	Cys	Cys	Cys	Ala	Ala	Cys	Ala	Ala	Gly	Cys	Cys	Ala	Cys	260	265	270	
Gly	Ala	Thr	Thr	Cys	Thr	Gly	Cys	Ala	Ala	Ala	Cys	Ala	Gly	Gly	Thr	275	280	285	
Ala	Ala	Cys	Gly	Gly	Cys	Ala	Thr	Ala	Cys	Cys	Gly	Cys	Ala	Ala	Gly	290	295	300	
Thr	Cys	Ala	Ala	Thr	Ala	Thr	Thr	Cys	Ala	Ala	Ala	Cys	Cys	Cys	Cys	305	310	315	320
Thr	Ala	Cys	Thr	Thr	Cys	Gly	Gly	Cys	Ala	Gly	Gly	Gly	Gly	Thr	Thr	325	330	335	

Thr Cys Thr Gly Thr Thr Ala Ala Thr Cys Ala Ala Thr Ala Thr Gly	340	345	350
Cys Cys Cys Ala Gly Thr Thr Thr Gly Ala Thr Gly Thr Gly Gly Gly	355	360	365
Thr Ala Ala Thr Cys Gly Cys Gly Gly Gly Gly Cys Gly Ala Thr Thr	370	375	380
Thr Thr Ala Ala Ala Cys Ala Ala Cys Ala Gly Thr Cys Gly Cys Ala	385	390	395
Gly Cys Ala Ala Cys Ala Cys Cys Cys Ala Ala Ala Cys Ala Cys Ala	405	410	415
Gly Cys Thr Ala Gly Gly Cys Gly Gly Thr Thr Gly Gly Ala Thr Thr	420	425	430
Cys Ala Ala Gly Gly Cys Ala Ala Thr Cys Cys Thr Thr Gly Gly Thr	435	440	445
Thr Gly Ala Cys Ala Ala Gly Gly Gly Gly Cys Gly Ala Ala Gly Cys	450	455	460
Ala Cys Gly Thr Gly Thr Gly Gly Thr Thr Gly Thr Ala Ala Ala Cys	465	470	475
Cys Ala Ala Ala Thr Cys Ala Ala Cys Ala Gly Cys Ala Gly Cys Cys	485	490	495
Ala Thr Cys Cys Thr Thr Cys Ala Cys Ala Ala Cys Thr Gly Ala Ala	500	505	510
Thr Gly Gly Cys Thr Ala Thr Ala Thr Thr Gly Ala Ala Gly Thr Gly	515	520	525
Gly Gly Thr Gly Gly Ala Cys Gly Ala Cys Gly Thr Gly Cys Ala Gly	530	535	540
Ala Ala Gly Thr Cys Gly Thr Thr Ala Thr Thr Gly Cys Cys Ala Ala	545	550	555
Thr Cys Cys Gly Gly Cys Ala Gly Gly Gly Ala Thr Thr Gly Cys Ala	565	570	575
Gly Thr Cys Ala Ala Thr Gly Gly Thr Gly Gly Thr Gly Gly Thr Thr	580	585	590
Thr Thr Ala Thr Cys Ala Ala Thr Gly Cys Thr Thr Cys Cys Cys Gly	595	600	605
Thr Gly Cys Cys Ala Cys Thr Thr Thr Gly Ala Cys Gly Ala Cys Ala	610	615	620
Gly Gly Cys Cys Ala Ala Cys Cys Gly Cys Ala Ala Thr Ala Thr Cys	625	630	635
			640

Ala Ala Gly Cys Ala Gly Gly Ala Gly Ala Cys Thr Thr Thr Ala Gly
645 650 655

Cys Gly Gly Cys Thr Thr Thr Ala Ala Gly Ala Thr Ala Ala Gly Gly
660 665 670

Cys Ala Ala Gly Gly Cys Ala Ala Thr Gly Cys Thr Gly Thr Ala Ala
675 680 685

Thr Cys Gly Cys Cys Gly Gly Ala Cys Ala Cys Gly Gly Thr Thr Thr
690 695 700

Gly Gly Ala Thr Gly Cys Cys Cys Gly Thr Gly Ala Thr Ala Cys Cys
705 710 715 720

Gly Ala Thr Thr Thr Cys Ala Cys Ala Cys Gly Thr Ala Thr Thr Cys
725 730 735

Thr Thr Gly Thr Ala Thr Gly Cys Cys Ala Ala Cys Ala Ala Ala Ala
740 745 750

Thr Cys Ala Cys Cys Thr Thr Gly Ala Thr Cys Ala Gly Thr Ala Cys
755 760 765

Gly Gly Cys Cys Gly Ala Ala Cys Ala Ala Gly Cys Ala Gly Gly Cys
770 775 780

Ala Thr Thr Cys Gly Thr Ala Ala
785 790

<210> 186
<211> 263
<212> PRT
<213> Neisseria gonorrhoeae

<400> 186
Met Asn Lys Thr Leu Tyr Arg Val Ile Phe Asn Arg Lys Arg Gly Ala
1 5 10 15

Val Val Ala Val Ala Glu Thr Thr Lys Arg Glu Gly Lys Ser Cys Ala
20 25 30

Asp Ser Gly Ser Gly Ser Val Tyr Val Lys Ser Val Ser Phe Ile Pro
35 40 45

Thr His Ser Lys Ala Phe Cys Phe Ser Ala Leu Gly Phe Ser Leu Cys
50 55 60

Leu Ala Leu Gly Thr Val Asn Ile Ala Phe Ala Asp Gly Ile Ile Thr
65 70 75 80

Asp Lys Ala Ala Pro Lys Thr Gln Gln Ala Thr Ile Leu Gln Thr Gly
85 90 95

Asn Gly Ile Pro Gln Val Asn Ile Gln Thr Pro Thr Ser Ala Gly Val
100 105 110

Ser Val Asn Gln Tyr Ala Gln Phe Asp Val Gly Asn Arg Gly Ala Ile
 115 120 125
 Leu Asn Asn Ser Arg Ser Asn Thr Gln Thr Gln Leu Gly Gly Trp Ile
 130 135 140
 Gln Gly Asn Pro Trp Leu Thr Arg Gly Glu Ala Arg Val Val Val Asn
 145 150 155 160
 Gln Ile Asn Ser Ser His Pro Ser Gln Leu Asn Gly Tyr Ile Glu Val
 165 170 175
 Gly Gly Arg Arg Ala Glu Val Val Ile Ala Asn Pro Ala Gly Ile Ala
 180 185 190
 Val Asn Gly Gly Gly Phe Ile Asn Ala Ser Arg Ala Thr Leu Thr Thr
 195 200 205
 Gly Gln Pro Gln Tyr Gln Ala Gly Asp Phe Ser Gly Phe Lys Ile Arg
 210 215 220
 Gln Gly Asn Ala Val Ile Ala Gly His Gly Leu Asp Ala Arg Asp Thr
 225 230 235 240
 Asp Phe Thr Arg Ile Leu Val Cys Gln Gln Asn His Leu Asp Gln Tyr
 245 250 255
 Gly Arg Thr Ser Arg His Ser
 260

<210> 187
 <211> 243
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 187
 atgaatactc ctcccttttgt ctgttggtt ttttgcaagg tcatcgacaa tttcggcgac 60
 atcggcggtt cgtggcggt cgcctgtgt ttgcaccgcg aactcgggtg gcaggtgcat 120
 ttgtggacgg acgatgtgtc cgccttgcgt gcgctttgcc ctgatttgcc cgatgttccc 180
 tgcgttcac acgatattca tgtccgcact tggcattccg atgcggcaga tattgatacc 240
 gcg 243

<210> 188
 <211> 81
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 188
 Met Asn Thr Pro Pro Phe Val Cys Trp Ile Phe Cys Lys Val Ile Asp
 1 5 10 15
 Asn Phe Gly Asp Ile Gly Val Ser Trp Arg Leu Ala Arg Val Leu His
 20 25 30
 Arg Glu Leu Gly Trp Gln Val His Leu Trp Thr Asp Asp Val Ser Ala
 35 40 45

Leu Arg Ala Leu Cys Pro Asp Leu Pro Asp Val Pro Cys Val His Gln
50 55 60

Asp Ile His Val Arg Thr Trp His Ser Asp Ala Ala Asp Ile Asp Thr
65 70 75 80

Ala

<210> 189
<211> 1149
<212> DNA
<213> Neisseria meningitidis

<400> 189
atgaatactc ctccttttgt ctgttggatt ttttgcaagg tcatcgacaa tttcggcgac 60
atcggcggtt cgtggcggct cgcccgtgtt ttgcaccgag aactcggttg gcaggtgcat 120
ttgtggacgg acgatgtgtc cgccttgcgt gcgctttgcc ctgatttgcc cgatgttccc 180
tgcgttcacg aggatattca tgtccgcact tggcattccg atgcggcaga tattgatacc 240
gcgcctgttc ccgatgtcgt catcgaaact tttgcctgag acctgcccga aaatgtgctg 300
cacattatcc gccgacacaa gccgcttttg ctgaattggg aatatttgag cgcggaggaa 360
agcaatgaaa ggctgcatct gatgccttcg ccgcaggagg gtgttcaaaa atatttttgg 420
tttatgggtt tcagcgaaaa aagcggcggg ttgatacgcg aacgtgatta ctgcgaagcc 480
gtccgtttcg atactgaagc cctgcgagag cggtgatgc tgcccgaana aaacgcctcc 540
gaatggctgc ttttcggcta tcggagcgat gtttgggcaa agtggctgga aatgtggcga 600
caggcaggca gcccgatgac actgttgctg gcggggacgc aaatcatcga cagcctcaaa 660
caaagcggcg ttattccgca agatgccctg caaaacgacg gcgatgtttt tcagacggca 720
tccgtccgcc tcgtcaaaat ccctttcgtg ccgcaacagc acttcgacca actgctgcac 780
cttgccgact gcgccgtcat ccgcggcgaa gacagtttcg tgccgcgcca gcttgcgggc 840
aaacccttct tttggcacat ctaccgcgaa gacgagaatg tccatctcga caaactccac 900
gccttttggg ataaggcaca cggtttctac acgcccgaana ccgtgtcggc acaccgccgt 960
ctttcggacg acctcaacgg cggagaggct ttatccgcaa cacaacgcct cgaatgttgg 1020
caaaccctgc aacaacatca aaacggctgg cggcaaggcg cggaggattg gagccgttat 1080
cttttcggcg agccgtcagc tcctgaaaaa ctgcgtgcct ttgtttcaaa gcatcaaaaa 1140
atacgctag 1149

<210> 190
<211> 383
<212> PRT
<213> Neisseria meningitidis

<400> 190
Met Asn Thr Pro Pro Phe Val Cys Trp Ile Phe Cys Lys Val Ile Asp
1 5 10 15
Asn Phe Gly Asp Ile Gly Val Ser Trp Arg Leu Ala Arg Val Leu His
20 25 30
Arg Glu Leu Gly Trp Gln Val His Leu Trp Thr Asp Asp Val Ser Ala
35 40 45
Leu Arg Ala Leu Cys Pro Asp Leu Pro Asp Val Pro Cys Val His Gln
50 55 60
Asp Ile His Val Arg Thr Trp His Ser Asp Ala Ala Asp Ile Asp Thr
65 70 75 80

Ala	Pro	Val	Pro	Asp	Val	Val	Ile	Glu	Thr	Phe	Ala	Cys	Asp	Leu	Pro	85	90	95
Glu	Asn	Val	Leu	His	Ile	Ile	Arg	Arg	His	Lys	Pro	Leu	Trp	Leu	Asn	100	105	110
Trp	Glu	Tyr	Leu	Ser	Ala	Glu	Glu	Ser	Asn	Glu	Arg	Leu	His	Leu	Met	115	120	125
Pro	Ser	Pro	Gln	Glu	Gly	Val	Gln	Lys	Tyr	Phe	Trp	Phe	Met	Gly	Phe	130	135	140
Ser	Glu	Lys	Ser	Gly	Gly	Leu	Ile	Arg	Glu	Arg	Asp	Tyr	Cys	Glu	Ala	145	150	155
Val	Arg	Phe	Asp	Thr	Glu	Ala	Leu	Arg	Glu	Arg	Leu	Met	Leu	Pro	Glu	165	170	175
Lys	Asn	Ala	Ser	Glu	Trp	Leu	Leu	Phe	Gly	Tyr	Arg	Ser	Asp	Val	Trp	180	185	190
Ala	Lys	Trp	Leu	Glu	Met	Trp	Arg	Gln	Ala	Gly	Ser	Pro	Met	Thr	Leu	195	200	205
Leu	Leu	Ala	Gly	Thr	Gln	Ile	Ile	Asp	Ser	Leu	Lys	Gln	Ser	Gly	Val	210	215	220
Ile	Pro	Gln	Asp	Ala	Leu	Gln	Asn	Asp	Gly	Asp	Val	Phe	Gln	Thr	Ala	225	230	235
Ser	Val	Arg	Leu	Val	Lys	Ile	Pro	Phe	Val	Pro	Gln	Gln	Asp	Phe	Asp	245	250	255
Gln	Leu	Leu	His	Leu	Ala	Asp	Cys	Ala	Val	Ile	Arg	Gly	Glu	Asp	Ser	260	265	270
Phe	Val	Arg	Ala	Gln	Leu	Ala	Gly	Lys	Pro	Phe	Phe	Trp	His	Ile	Tyr	275	280	285
Pro	Gln	Asp	Glu	Asn	Val	His	Leu	Asp	Lys	Leu	His	Ala	Phe	Trp	Asp	290	295	300
Lys	Ala	His	Gly	Phe	Tyr	Thr	Pro	Glu	Thr	Val	Ser	Ala	His	Arg	Arg	305	310	315
Leu	Ser	Asp	Asp	Leu	Asn	Gly	Gly	Glu	Ala	Leu	Ser	Ala	Thr	Gln	Arg	325	330	335
Leu	Glu	Cys	Trp	Gln	Thr	Leu	Gln	Gln	His	Gln	Asn	Gly	Trp	Arg	Gln	340	345	350
Gly	Ala	Glu	Asp	Trp	Ser	Arg	Tyr	Leu	Phe	Gly	Gln	Pro	Ser	Ala	Pro	355	360	365
Glu	Lys	Leu	Ala	Ala	Phe	Val	Ser	Lys	His	Gln	Lys	Ile	Arg	Trp		370	375	380

<210> 191
<211> 1149
<212> DNA
<213> Neisseria meningitidis

<220>
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<222> (28)..(28)
<223> N= Unknown

<220>
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<223> N= Unknown

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<222> (251)..(251)
<223> N= Unknown

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<223> N= Unknown

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<220>
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<223> N= Unknown

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<223> N= Unknown

<220>
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<222> (439)..(441)
<223> N= Unknown

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<223> N= Unknown

<220>

<221> misc_feature
<222> (633)..(633)
<223> N= Unknown

<220>
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<222> (642)..(642)
<223> N= Unknown

<400> 191
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atcggcggtt cgtggcggtt tgcccggtgt ttgcaccgag aactcgggtt gcagggtgat 120
ttgtggacgg acgatgtgtc cgccttgctt gcgctttgcc ctgatttgcc cgatgttcnc 180
tgcgttcatc aggatattca tgtccgcact tggcattccg atgcggcaga tattgatacc 240
gcgcctgttc ncgatgtcgt catcgaaact tttgcctgcg acctgcccga aaatgtgctg 300
cacatcatcc gccgacacaa gccgcttttg ctgaantggg aatatttgag cgcggaggan 360
agcaatgaaa ggctgcacnt gatgccttcg ccgcaggaga gtgttcnaaa atanttttgg 420
tttatgggtt tcagcgaann naggcgcgga ctgatacgcg aacgcgatta ctgcgaagcc 480
gtccgtttcg atagcggagc cttgcgcaag aggtgatgc tccccgaaaa aaacgncccc 540
gaatggctgc ttttcggcta tcggagcgat gtttgggcaa agtggctgga aatgtggcga 600
caggcaggca gtccgttgac acttttgctg gcnggggccc anattatcga cagcctcaaa 660
caaaacggcg ttattccgca agatgccctg caaaacgacg gcgatgtttt tcagacggca 720
tcggtccgcc tcgtcaaaat ccctttcgtg ccgcaacagg acttcgacaa actgctgcac 780
cttgccgact gcgcgcgtcat ccgcggcgaa gacagtttcg tgcgcgcccc gcttgcgggc 840
aaacccttct tttggcacat ctaccgcgaa gatgagaatg tccatctcga caaactccac 900
gccttttggg ataaggcaca cggtttctac acgcccgaag ccgcacgggc acaccgccc 960
ctttcagacg acctcaacgg cggagaggct ttatccgcaa cacaacgcct cgaatgttgg 1020
caaatcctgc aacaacatca aaacggctgg cggcaaggcg cggaggattg gagccgttat 1080
ctttttgggc agccttcgcg atccgaaaaa ctgcgcgctt ttgtttcaaa gcataaaaaa 1140
atacgctag 1149

<210> 192
<211> 382
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (10)..(10)
<223> Xaa= Unknown

<220>
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<222> (60)..(60)
<223> Xaa= Unknown

<220>
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<222> (84)..(84)
<223> Xaa= Unknown

<220>
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<222> (112)..(112)
<223> Xaa= Unknown

<220>
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 <222> (120)..(120)
 <223> Xaa= Unknown

<220>
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 <222> (127)..(127)
 <223> Xaa= Unknown

<220>
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 <222> (136)..(136)
 <223> Xaa= Unknown

<220>
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 <222> (138)..(138)
 <223> Xaa= Unknown

<220>
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 <222> (147)..(147)
 <223> Xaa= Unknown

<220>
 <221> misc_feature
 <222> (179)..(179)
 <223> Xaa= Unknown

<220>
 <221> misc_feature
 <222> (214)..(214)
 <223> Xaa= Unknown

<400> 192
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 Asn Phe Gly Asp Ile Gly Val Ser Trp Arg Leu Ala Arg Val Leu His
 20 25 30
 Arg Glu Leu Gly Trp Gln Val His Leu Trp Thr Asp Asp Val Ser Ala
 35 40 45
 Leu Arg Ala Leu Cys Pro Asp Leu Pro Asp Val Xaa Cys Val His Gln
 50 55 60
 Asp Ile His Val Arg Thr Trp His Ser Asp Ala Ala Asp Ile Asp Thr
 65 70 75 80
 Ala Pro Val Xaa Asp Val Val Ile Glu Thr Phe Ala Cys Asp Leu Pro
 85 90 95
 Glu Asn Val Leu His Ile Ile Arg Arg His Lys Pro Leu Trp Leu Xaa
 100 105 110

Trp Glu Tyr Leu Ser Ala Glu Xaa Ser Asn Glu Arg Leu His Xaa Met
 115 120 125
 Pro Ser Pro Gln Glu Ser Val Xaa Lys Xaa Phe Trp Phe Met Gly Phe
 130 135 140
 Ser Glu Xaa Ser Gly Gly Leu Ile Arg Glu Arg Asp Tyr Cys Glu Ala
 145 150 155 160
 Val Arg Phe Asp Ser Gly Ala Leu Arg Lys Arg Leu Met Leu Pro Glu
 165 170 175
 Lys Asn Xaa Pro Glu Trp Leu Leu Phe Gly Tyr Arg Ser Asp Val Trp
 180 185 190
 Ala Lys Trp Leu Glu Met Trp Arg Gln Ala Gly Ser Pro Leu Thr Leu
 195 200 205
 Leu Leu Ala Gly Ala Xaa Ile Ile Asp Ser Leu Lys Gln Asn Gly Val
 210 215 220
 Ile Pro Gln Asp Ala Leu Gln Asn Asp Gly Asp Val Phe Gln Thr Ala
 225 230 235 240
 Ser Val Arg Leu Val Lys Ile Pro Phe Val Pro Gln Gln Asp Phe Asp
 245 250 255
 Lys Leu Leu His Leu Ala Asp Cys Ala Val Ile Arg Gly Glu Asp Ser
 260 265 270
 Phe Val Arg Ala Gln Leu Ala Gly Lys Pro Phe Phe Trp His Ile Tyr
 275 280 285
 Pro Gln Asp Glu Asn Val His Leu Asp Lys Leu His Ala Phe Trp Asp
 290 295 300
 Lys Ala His Gly Phe Tyr Thr Pro Glu Thr Ala Ser Ala His Arg Arg
 305 310 315 320
 Leu Ser Asp Asp Leu Asn Gly Gly Glu Ala Leu Ser Ala Thr Gln Arg
 325 330 335
 Leu Glu Cys Trp Gln Ile Leu Gln Gln His Gln Asn Gly Trp Arg Gln
 340 345 350
 Gly Ala Glu Asp Trp Ser Arg Tyr Leu Phe Gly Gln Pro Ser Ala Ser
 355 360 365
 Glu Lys Leu Ala Ala Phe Val Ser Lys His Gln Lys Ile Arg
 370 375 380

<210> 193
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
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 <222> (1)..(8)
 <223> N= Unknown

<400> 193
 nnnnnnnn

8

<210> 194
 <211> 345
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 194
 Met Val Met Asn Thr Tyr Ala Phe Pro Val Cys Trp Ile Phe Cys Lys
 1 5 10 15
 Val Ile Asp Asn Phe Gly Asp Ile Gly Val Ser Trp Arg Leu Ala Arg
 20 25 30
 Val Leu His Arg Glu Leu Gly Trp Gln Val His Leu Trp Thr Asp Asp
 35 40 45
 Val Ser Ala Leu Arg Ala Leu Cys Pro Asp Leu Pro Asp Val Pro Phe
 50 55 60
 Val His Gln Asp Ile His Val Arg Thr Trp His Ser Asp Ala Ala Asp
 65 70 75 80
 Ile Asp Thr Ala Pro Val Pro Asp Ala Val Ile Glu Thr Phe Ala Cys
 85 90 95
 Asp Leu Pro Glu Asn Val Leu Asn Ile Ile Arg Arg His Lys Pro Leu
 100 105 110
 Trp Leu Asn Trp Glu Tyr Leu Ser Ala Glu Glu Ser Asn Glu Arg Leu
 115 120 125
 His Leu Met Pro Ser Pro Gln Glu Gly Val Gln Lys Tyr Phe Trp Phe
 130 135 140
 Met Gly Phe Ser Glu Lys Ser Gly Gly Leu Ile Arg Glu Arg Asp Tyr
 145 150 155 160
 Arg Glu Ala Val Arg Phe Asp Thr Glu Ala Leu Arg Arg Arg Leu Val
 165 170 175
 Leu Pro Glu Lys Asn Ala Pro Glu Trp Leu Leu Phe Gly Tyr Arg Gly
 180 185 190
 Asp Val Trp Ala Lys Trp Leu Asp Met Trp Gln Gln Ala Gly Ser Leu
 195 200 205
 Met Thr Leu Leu Leu Ala Gly Ala Gln Ile Ile Asp Ser Leu Lys Gln
 210 215 220

Ser Gly Val Ile Pro Gln Asn Ala Leu Gln Asn Glu Gly Gly Val Phe
225 230 235 240

Gln Thr Ala Ser Val Arg Leu Val Lys Ile Pro Phe Val Pro Gln Gln
245 250 255

Asp Phe Asp Lys Leu Leu His Leu Ala Asp Cys Ala Val Ile Arg Gly
260 265 270

Glu Asp Ser Phe Val Arg Thr Gln Leu Ala Gly Lys Pro Phe Phe Trp
275 280 285

His Ile Tyr Pro Gln Asp Glu Asn Val His Leu Asp Lys Leu His Ala
290 295 300

Phe Trp Asp Lys Ala Tyr Gly Phe Tyr Thr Pro Glu Thr Ala Ser Val
305 310 315 320

His Arg Leu Leu Ser Asp Asp Leu Asn Gly Gly Glu Ala Leu Ser Ala
325 330 335

Thr Gln Arg Leu Glu Cys Gly Val Leu
340 345

<210> 195

<211> 1152

<212> PRT

<213> Neisseria gonorrhoeae

<400> 195

Ala Thr Gly Ala Ala Thr Ala Cys Ala Thr Ala Cys Gly Cys Thr Thr
1 5 10 15

Thr Thr Cys Cys Thr Gly Thr Cys Thr Gly Thr Thr Gly Gly Ala Thr
20 25 30

Thr Thr Thr Thr Thr Gly Cys Ala Ala Gly Gly Thr Cys Ala Thr Cys
35 40 45

Gly Ala Cys Ala Ala Thr Thr Thr Cys Gly Gly Cys Gly Ala Cys Ala
50 55 60

Thr Cys Gly Gly Cys Gly Thr Thr Thr Cys Gly Thr Gly Gly Cys Gly
65 70 75 80

Gly Cys Thr Cys Gly Cys Cys Cys Gly Thr Gly Thr Thr Thr Thr Gly
85 90 95

Cys Ala Cys Cys Gly Cys Gly Ala Ala Cys Thr Cys Gly Gly Thr Thr
100 105 110

Gly Gly Cys Ala Gly Gly Thr Gly Cys Ala Thr Thr Thr Gly Thr Gly
115 120 125

Gly Ala Cys Gly Gly Ala Cys Gly Ala Cys Gly Thr Gly Thr Cys Cys
130 135 140

Gly Cys Cys Thr Thr	Gly Cys Gly Cys Gly Cys Gly Cys Thr Thr Thr	145	150	155	160
Gly Thr Cys Cys Cys	Gly Ala Thr Thr Thr Gly Cys Cys Cys Gly Ala	165	170	175	
Thr Gly Thr Thr	Cys Cys Cys Thr Thr Cys Gly Thr Thr Cys Ala Thr	180	185	190	
Cys Ala Gly Gly Ala Thr Ala Thr Thr Cys Ala Thr Gly Thr Cys Cys		195	200	205	
Gly Cys Ala Cys Thr Thr Gly Gly Cys Ala Thr Thr Cys Cys Gly Ala		210	215	220	
Thr Gly Cys Gly Gly Cys Ala Gly Ala Cys Ala Thr Thr Gly Ala Thr		225	230	235	240
Ala Cys Cys Gly Cys Gly Cys Cys Cys Gly Thr Thr Cys Cys Cys Gly		245	250	255	
Ala Thr Gly Cys Cys Gly Thr Thr Ala Thr Cys Gly Ala Ala Ala Cys		260	265	270	
Thr Thr Thr Thr Gly Cys Cys Thr Gly Cys Gly Ala Cys Cys Thr Gly		275	280	285	
Cys Cys Cys Gly Ala Ala Ala Ala Thr Gly Thr Gly Cys Thr Gly Ala		290	295	300	
Ala Cys Ala Thr Cys Ala Thr Cys Cys Gly Cys Cys Gly Ala Cys Ala		305	310	315	320
Cys Ala Ala Ala Cys Cys Gly Cys Thr Thr Thr Gly Gly Cys Thr Gly		325	330	335	
Ala Ala Thr Thr Gly Gly Gly Ala Ala Thr Ala Thr Thr Thr Gly Ala		340	345	350	
Gly Cys Gly Cys Gly Gly Ala Gly Gly Ala Ala Ala Gly Cys Ala Ala		355	360	365	
Thr Gly Ala Ala Ala Gly Gly Cys Thr Gly Cys Ala Cys Cys Thr Gly		370	375	380	
Ala Thr Gly Cys Cys Thr Thr Cys Gly Cys Cys Gly Cys Ala Gly Gly		385	390	395	400
Ala Gly Gly Gly Cys Gly Thr Thr Cys Ala Ala Ala Ala Thr Ala		405	410	415	
Thr Thr Thr Thr Thr Gly Gly Thr Thr Thr Ala Thr Gly Gly Gly Thr		420	425	430	
Thr Thr Cys Ala Gly Cys Gly Ala Ala Ala Ala Ala Gly Cys Gly		435	440	445	

Gly Cys Gly Gly Gly Thr Thr Gly Ala Thr Ala Cys Gly Cys Gly Ala	450	455	460
Ala Cys Gly Cys Gly Ala Thr Thr Ala Cys Cys Gly Cys Gly Ala Ala	465	470	475 480
Gly Cys Cys Gly Thr Cys Cys Gly Thr Thr Thr Cys Gly Ala Thr Ala		485	490 495
Cys Cys Gly Ala Ala Gly Cys Cys Cys Thr Gly Cys Gly Cys Cys Gly		500	505 510
Gly Cys Gly Gly Cys Thr Gly Gly Thr Gly Cys Thr Gly Cys Cys Cys		515	520 525
Gly Ala Ala Ala Ala Ala Ala Ala Cys Gly Cys Cys Cys Cys Cys Gly		530	535 540
Ala Ala Thr Gly Gly Cys Thr Gly Cys Thr Thr Thr Thr Cys Gly Gly		545	550 555 560
Cys Thr Ala Thr Cys Gly Gly Gly Gly Cys Gly Ala Thr Gly Thr Thr		565	570 575
Thr Gly Gly Gly Cys Ala Ala Ala Gly Thr Gly Gly Cys Thr Gly Gly		580	585 590
Ala Cys Ala Thr Gly Thr Gly Gly Cys Ala Ala Cys Ala Gly Gly Cys		595	600 605
Ala Gly Gly Cys Ala Gly Cys Cys Thr Gly Ala Thr Gly Ala Cys Cys		610	615 620
Cys Thr Ala Cys Thr Gly Cys Thr Gly Gly Cys Gly Gly Gly Gly Gly		625	630 635 640
Cys Gly Cys Ala Ala Ala Thr Thr Ala Thr Cys Gly Ala Cys Ala Gly		645	650 655
Cys Cys Thr Cys Ala Ala Ala Cys Ala Ala Ala Gly Cys Gly Gly Cys		660	665 670
Gly Thr Thr Ala Thr Thr Cys Cys Gly Cys Ala Ala Ala Ala Cys Gly		675	680 685
Cys Cys Cys Thr Gly Cys Ala Ala Ala Ala Thr Gly Ala Ala Gly Gly		690	695 700
Cys Gly Gly Thr Gly Thr Cys Thr Thr Thr Cys Ala Gly Ala Cys Gly		705	710 715 720
Gly Cys Ala Thr Cys Cys Gly Thr Cys Cys Gly Cys Cys Thr Thr Gly		725	730 735
Thr Cys Ala Ala Ala Ala Thr Cys Cys Cys Gly Thr Thr Cys Gly Thr		740	745 750

Gly Cys Cys Gly Cys Ala Ala Cys Ala Gly Gly Ala Cys Thr Thr Cys	755	760	765
Gly Ala Cys Ala Ala Ala Thr Thr Gly Cys Thr Gly Cys Ala Cys Cys	770	775	780
Thr Cys Gly Cys Cys Gly Ala Cys Thr Gly Cys Gly Cys Cys Gly Thr	785	790	795
Gly Ala Thr Ala Cys Gly Cys Gly Gly Cys Gly Ala Ala Gly Ala Cys	805	810	815
Ala Gly Thr Thr Thr Cys Gly Thr Gly Cys Gly Thr Ala Cys Cys Cys	820	825	830
Ala Gly Cys Thr Thr Gly Cys Cys Gly Gly Ala Ala Ala Ala Cys Cys	835	840	845
Cys Thr Thr Thr Thr Thr Thr Thr Gly Gly Cys Ala Cys Ala Thr Cys	850	855	860
Thr Ala Cys Cys Cys Gly Cys Ala Ala Gly Ala Cys Gly Ala Gly Ala	865	870	875
Ala Thr Gly Thr Cys Cys Ala Thr Cys Thr Cys Gly Ala Cys Ala Ala	885	890	895
Ala Cys Thr Cys Cys Ala Cys Gly Cys Cys Thr Thr Thr Thr Gly Gly	900	905	910
Gly Ala Thr Ala Ala Gly Gly Cys Ala Thr Ala Cys Gly Gly Cys Thr	915	920	925
Thr Cys Thr Ala Cys Ala Cys Gly Cys Cys Cys Gly Ala Ala Ala Cys	930	935	940
Cys Gly Cys Ala Thr Cys Gly Gly Thr Gly Cys Ala Cys Cys Gly Cys	945	950	955
Cys Thr Cys Cys Thr Thr Thr Cys Gly Gly Ala Cys Gly Ala Cys Cys	965	970	975
Thr Cys Ala Ala Cys Gly Gly Cys Gly Gly Ala Gly Ala Gly Gly Cys	980	985	990
Thr Thr Thr Ala Thr Cys Cys Gly Cys Ala Ala Cys Ala Cys Ala Ala	995	1000	1005
Cys Gly Cys Cys Thr Cys Gly Ala Ala Thr Gly Thr Thr Gly Gly	1010	1015	1020
Cys Ala Ala Ala Cys Cys Cys Thr Gly Cys Ala Ala Cys Ala Ala	1025	1030	1035
Cys Ala Thr Cys Ala Ala Ala Ala Cys Gly Gly Cys Thr Gly Gly	1040	1045	1050

Cys Gly Gly Cys Ala Ala Gly Gly Cys Gly Cys Gly Gly Ala Gly
 1055 1060 1065
 Gly Ala Thr Thr Gly Gly Ala Gly Cys Cys Gly Thr Thr Ala Thr
 1070 1075 1080
 Cys Thr Thr Thr Thr Cys Gly Gly Gly Cys Ala Gly Cys Cys Thr
 1085 1090 1095
 Thr Cys Cys Gly Cys Ala Thr Cys Cys Gly Ala Ala Ala Ala Ala
 1100 1105 1110
 Cys Thr Cys Gly Cys Cys Gly Cys Cys Thr Thr Thr Gly Thr Thr
 1115 1120 1125
 Thr Cys Ala Ala Ala Gly Cys Ala Thr Cys Ala Ala Ala Ala Ala
 1130 1135 1140
 Ala Thr Ala Cys Gly Cys Thr Ala Gly
 1145 1150

<210> 196
 <211> 383
 <212> PRT
 <213> Neisseria meningitidis

<400> 196
 Met Asn Thr Tyr Ala Phe Pro Val Cys Trp Ile Phe Cys Lys Val Ile
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 Asp Asn Phe Gly Asp Ile Gly Val Ser Trp Arg Leu Ala Arg Val Leu
 20 25 30
 His Arg Glu Leu Gly Trp Gln Val His Leu Trp Thr Asp Asp Val Ser
 35 40 45
 Ala Leu Arg Ala Leu Cys Pro Asp Leu Pro Asp Val Pro Phe Val His
 50 55 60
 Gln Asp Ile His Val Arg Thr Trp His Ser Asp Ala Ala Asp Ile Asp
 65 70 75 80
 Thr Ala Pro Val Pro Asp Ala Val Ile Glu Thr Phe Ala Cys Asp Leu
 85 90 95
 Pro Glu Asn Val Leu Asn Ile Ile Arg Arg His Lys Pro Leu Trp Leu
 100 105 110
 Asn Trp Glu Tyr Leu Ser Ala Glu Glu Ser Asn Glu Arg Leu His Leu
 115 120 125
 Met Pro Ser Pro Gln Glu Gly Val Gln Lys Tyr Phe Trp Phe Met Gly
 130 135 140
 Phe Ser Glu Lys Ser Gly Gly Leu Ile Arg Glu Arg Asp Tyr Arg Glu
 145 150 155 160

Ala	Val	Arg	Phe	Asp	Thr	Glu	Ala	Leu	Arg	Arg	Arg	Leu	Val	Leu	Pro			
				165					170					175				
Glu	Lys	Asn	Ala	Pro	Glu	Trp	Leu	Leu	Phe	Gly	Tyr	Arg	Gly	Asp	Val			
			180					185						190				
Trp	Ala	Lys	Trp	Leu	Asp	Met	Trp	Gln	Gln	Ala	Gly	Ser	Leu	Met	Thr			
		195					200						205					
Leu	Leu	Leu	Ala	Gly	Ala	Gln	Ile	Ile	Asp	Ser	Leu	Lys	Gln	Ser	Gly			
	210					215						220						
Val	Ile	Pro	Gln	Asn	Ala	Leu	Gln	Asn	Glu	Gly	Gly	Val	Phe	Gln	Thr			
225					230					235					240			
Ala	Ser	Val	Arg	Leu	Val	Lys	Ile	Pro	Phe	Val	Pro	Gln	Gln	Asp	Phe			
				245					250					255				
Asp	Lys	Leu	Leu	His	Leu	Ala	Asp	Cys	Ala	Val	Ile	Arg	Gly	Glu	Asp			
		260						265						270				
Ser	Phe	Val	Arg	Thr	Gln	Leu	Ala	Gly	Lys	Pro	Phe	Phe	Trp	His	Ile			
		275					280						285					
Tyr	Pro	Gln	Asp	Glu	Asn	Val	His	Leu	Asp	Lys	Leu	His	Ala	Phe	Trp			
	290					295					300							
Asp	Lys	Ala	Tyr	Gly	Phe	Tyr	Thr	Pro	Glu	Thr	Ala	Ser	Val	His	Arg			
305					310					315					320			
Leu	Leu	Ser	Asp	Asp	Leu	Asn	Gly	Gly	Glu	Ala	Leu	Ser	Ala	Thr	Gln			
			325						330					335				
Arg	Leu	Glu	Cys	Trp	Gln	Thr	Leu	Gln	Gln	His	Gln	Asn	Gly	Trp	Arg			
			340					345					350					
Gln	Gly	Ala	Glu	Asp	Trp	Ser	Arg	Tyr	Leu	Phe	Gly	Gln	Pro	Ser	Ala			
		355					360					365						
Ser	Glu	Lys	Leu	Ala	Ala	Phe	Val	Ser	Lys	His	Gln	Lys	Ile	Arg				
	370					375					380							

<210> 197
 <211> 428
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <223> N= Unknown

<220>
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 <222> (59)..(59)
 <223> N= Unknown

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<222> (97)..(97)
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<222> (136)..(136)
<223> N= Unknown

<220>
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<223> N= Unknown

<220>
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<222> (410)..(410)
<223> N= Unknown

<400> 197
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aaagaccctg taaatcaggc ggtggtgcgg ctgtatncgg acgagtggcg gcaacttcgg 120
tacgttgga aatagncgca acgtcgca ca cctgtggct ctgcacgctg ctcggaatgc 180
tgggtgcggt attgttgctg cttttggtgc ggcaatatac gttcaactgg gaaagcacgc 240
tggtgagcaa tgccgcttcg gtacgcgcgg tggaaatggt ggcatggctg ccgtcgaaac 300
tcggtttccc tgtccccgat gcgcggtcgg tcatcgaagg ccgtctgaac ggcaatattg 360
ccgatgcgcg ggcttggtcg gggctgctgg tcgncagtat cgctgctan ggcatcctgc 420
cgcgcctg 428

<210> 198
<211> 143
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (20)..(20)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (33)..(33)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (38)..(38)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (46)..(46)
<223> Xaa= any amino acid

<220>

<221> misc_feature
<222> (132)..(132)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (137)..(137)
<223> Xaa= any amino acid

<400> 198

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Xaa Asp Glu Trp Arg Xaa Thr Ser Val Arg Trp Lys Ile Xaa Ala Thr
35 40 45

Ser His Ser Leu Trp Leu Cys Thr Leu Leu Gly Met Leu Val Ser Val
50 55 60

Leu Leu Leu Leu Leu Val Arg Gln Tyr Thr Phe Asn Trp Glu Ser Thr
65 70 75 80

Leu Leu Ser Asn Ala Ala Ser Val Arg Ala Val Glu Met Leu Ala Trp
85 90 95

Leu Pro Ser Lys Leu Gly Phe Pro Val Pro Asp Ala Arg Ser Val Ile
100 105 110

Glu Gly Arg Leu Asn Gly Asn Ile Ala Asp Ala Arg Ala Trp Ser Gly
115 120 125

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<210> 199
<211> 1341
<212> DNA
<213> Neisseria meningitidis

<400> 199

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gaggaaaaaa	tcatccgtcg	ggcggagatg	attgacagga	accgtatgct	gcgggagacg	180
ttggaacgtg	tgcgtgcggg	gtcgttcttg	ttgtgggtgg	tggcggcgac	gtttgcattt	240
tttaccgggt	tttcagtcac	ttatcttcta	atggacaatc	agggtctgaa	tttctttttg	300
gtttttggcgg	gcgtgttg	ggcatgaatc	ctgatgctgg	cagtatggtt	ggcaatgttg	360
ttcctgcgtg	tgaaaagtgg	gcgttttttc	agcagtcagg	cgacgtgggt	tcggggcaaa	420
gacctgttaa	atcaggcggt	gttgcggctg	tatgcggacg	agtggcggca	accttcggta	480
cgttggaaaa	taggcgcaac	gtcgcacagc	ctgtggctct	gcacgtgctg	cggaatgctg	540
gtgtcggtat	tggtgctgct	ttggtgcggg	caatatacgt	tcaactggga	aagcacgctg	600
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ggtttccttg	tccccgatgc	gcgggcggtc	atcgaaggcc	gtctgaacgg	caatattgcc	720
gatgcgcggg	cttggtcggg	gctgctggtc	ggcagtatcg	cctgctacgg	catcctgccg	780

cgctgctgg	cttgggtagt	gtgtaaaatc	cttttgaaaa	caagcgaaaa	cggattggat	840
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gatacgcgtc	gggaaaccgt	gtccgccgtt	tcaccgaaaa	tcattcttgaa	cgatgcgccg	960
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gcgcaggaat	ggctggataa	ggcgcttgcc	accaatcggg	aacagggttgc	cgcgctggag	1080
acagagctga	agcagaaacc	ggcgcaactg	cttatcggcg	tgcgcgcccc	aactgtgccg	1140
gaccgcggcg	tgttgccgca	gattgtccga	ctctcggaag	cggcgccagg	cggcgccggtg	1200
gtgcagcttt	tggcggaaca	ggggctttca	gacgaccttt	cggaaaagct	ggaacattgg	1260
cgtaacgcgc	tggccgaatg	cggcgccggcg	tggcttgagc	ctgacagggc	ggcgccaggaa	1320
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<210> 200

<211> 446

<212> PRT

<213> Neisseria meningitidis

<400> 200

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Leu	Arg	Arg	Val	Asp	Gly	Ser	Thr	Glu	Glu	Lys	Ile	Ile	Arg	Arg	Ala
			35				40						45		
Glu	Met	Ile	Asp	Arg	Asn	Arg	Met	Leu	Arg	Glu	Thr	Leu	Glu	Arg	Val
	50					55					60				
Arg	Ala	Gly	Ser	Phe	Trp	Leu	Trp	Val	Val	Ala	Ala	Thr	Phe	Ala	Phe
65					70					75					80
Phe	Thr	Gly	Phe	Ser	Val	Thr	Tyr	Leu	Leu	Met	Asp	Asn	Gln	Gly	Leu
				85					90					95	
Asn	Phe	Phe	Leu	Val	Leu	Ala	Gly	Val	Leu	Gly	Met	Asn	Thr	Leu	Met
			100					105						110	
Leu	Ala	Val	Trp	Leu	Ala	Met	Leu	Phe	Leu	Arg	Val	Lys	Val	Gly	Arg
		115					120						125		
Phe	Phe	Ser	Ser	Pro	Ala	Thr	Trp	Phe	Arg	Gly	Lys	Asp	Pro	Val	Asn
		130					135					140			
Gln	Ala	Val	Leu	Arg	Leu	Tyr	Ala	Asp	Glu	Trp	Arg	Gln	Pro	Ser	Val
145					150					155					160
Arg	Trp	Lys	Ile	Gly	Ala	Thr	Ser	His	Ser	Leu	Trp	Leu	Cys	Thr	Leu
				165					170					175	
Leu	Gly	Met	Leu	Val	Ser	Val	Leu	Leu	Leu	Leu	Val	Arg	Gln	Tyr	
			180					185					190		
Thr	Phe	Asn	Trp	Glu	Ser	Thr	Leu	Leu	Ser	Asn	Ala	Ala	Ser	Val	Arg
		195					200					205			

Ala Val Glu Met Leu Ala Trp Leu Pro Ser Lys Leu Gly Phe Pro Val
 210 215 220
 Pro Asp Ala Arg Ala Val Ile Glu Gly Arg Leu Asn Gly Asn Ile Ala
 225 230 235 240
 Asp Ala Arg Ala Trp Ser Gly Leu Leu Val Gly Ser Ile Ala Cys Tyr
 245 250 255
 Gly Ile Leu Pro Arg Leu Leu Ala Trp Val Val Cys Lys Ile Leu Leu
 260 265 270
 Lys Thr Ser Glu Asn Gly Leu Asp Leu Glu Lys Pro Tyr Tyr Gln Ala
 275 280 285
 Val Ile Arg Arg Trp Gln Asn Lys Ile Thr Asp Ala Asp Thr Arg Arg
 290 295 300
 Glu Thr Val Ser Ala Val Ser Pro Lys Ile Ile Leu Asn Asp Ala Pro
 305 310 315 320
 Lys Trp Ala Val Met Leu Glu Thr Glu Trp Gln Asp Gly Glu Trp Phe
 325 330 335
 Glu Gly Arg Leu Ala Gln Glu Trp Leu Asp Lys Gly Val Ala Thr Asn
 340 345 350
 Arg Glu Gln Val Ala Ala Leu Glu Thr Glu Leu Lys Gln Lys Pro Ala
 355 360 365
 Gln Leu Leu Ile Gly Val Arg Ala Gln Thr Val Pro Asp Arg Gly Val
 370 375 380
 Leu Arg Gln Ile Val Arg Leu Ser Glu Ala Ala Gln Gly Gly Ala Val
 385 390 395 400
 Val Gln Leu Leu Ala Glu Gln Gly Leu Ser Asp Asp Leu Ser Glu Lys
 405 410 415
 Leu Glu His Trp Arg Asn Ala Leu Ala Glu Cys Gly Ala Ala Trp Leu
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<210> 201
 <211> 1350
 <212> DNA
 <213> Neisseria meningitidis

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gaggaaaaaa tcatccgtcg ggcgaagatg atcgacagga accgtatgct gcgggagacg 180
ttggaacgtg tgcgtgcggg gtcgttcttg ttgtgggttg cggcggcgac gtttgcgttt 240
nttaccgntt ttccagttac ttatcttcta atggacaatc agggctctgaa tttctttttg 300
gttttggcgg gcgtgntggg catgaatacg ctgatgctgg cagtatggtt ggcaatgttg 360

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gacctgtca	atcaggcggt	gttgcggtg	tatgcggacg	agtggcggn	accttcggt	480
cgttgaaaa	taggcgcaac	gtcgcacagc	ctgtggdct	gcacgctgct	cggaatgctg	540
gtgtcggat	tgttgctgct	tttggcgcg	caatatacgt	tcaactggga	aagcacgctg	600
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ggttttccc	tgcctgatgc	gcgggcggtc	atcgaaggtc	gtctgaacgg	caatattgcc	720
gatgcgcgg	cttggtcggg	gctgctggtc	ggcagtatcg	cctgctacgg	catcctgccg	780
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gcgcaggaat	ggctggataa	gggcgttgcc	gccaatcggg	aacagggtgc	cgcgctggag	1080
acagagctga	agcagaaacc	ggcgcaactg	cttatcggcg	tgcgcgccca	aactgtgccc	1140
gaccgcggcg	tgttgcgga	gatcgctcca	ctttcgggaag	cggcgcgagg	cggcgcggtg	1200
gtgcancctt	tggcggaaca	ggggctttca	gacgaccttt	cggaaaagct	ggaacattgg	1260
cgtaacgcgc	tgaccgaatg	cggcgcgggc	tggctggaac	ccgacagagc	ggcgcaggaa	1320
ggccgctctg	aaaccaacga	ccgcacttga				1350

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 <213> *Neisseria meningitidis*

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<220>
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 <223> Xaa= any amino acid

<220>
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 <222> (402)..(402)

<223> Xaa= any amino acid

<400> 202

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			20					25					30			
Leu	Arg	Arg	Val	Asp	Gly	Ser	Thr	Glu	Glu	Lys	Ile	Ile	Arg	Arg	Ala	
			35				40					45				
Lys	Met	Ile	Asp	Arg	Asn	Arg	Met	Leu	Arg	Glu	Thr	Leu	Glu	Arg	Val	
	50					55					60					
Arg	Ala	Gly	Ser	Phe	Trp	Leu	Trp	Val	Ala	Ala	Ala	Thr	Phe	Ala	Phe	
65					70					75					80	
Xaa	Thr	Xaa	Phe	Ser	Val	Thr	Tyr	Leu	Leu	Met	Asp	Asn	Gln	Gly	Leu	
				85					90					95		
Asn	Phe	Phe	Leu	Val	Leu	Ala	Gly	Val	Xaa	Gly	Met	Asn	Thr	Leu	Met	
			100					105					110			
Leu	Ala	Val	Trp	Leu	Ala	Met	Leu	Phe	Leu	Arg	Val	Lys	Val	Gly	Arg	
		115					120					125				
Phe	Phe	Ser	Ser	Pro	Ala	Thr	Trp	Phe	Arg	Gly	Lys	Asp	Pro	Val	Asn	
	130					135					140					
Gln	Ala	Val	Leu	Arg	Leu	Tyr	Ala	Asp	Glu	Trp	Arg	Xaa	Pro	Ser	Val	
145					150					155					160	
Arg	Trp	Lys	Ile	Gly	Ala	Thr	Ser	His	Ser	Leu	Trp	Leu	Cys	Thr	Leu	
				165					170					175		
Leu	Gly	Met	Leu	Val	Ser	Val	Leu	Leu	Leu	Leu	Val	Arg	Gln	Tyr		
		180						185					190			
Thr	Phe	Asn	Trp	Glu	Ser	Thr	Leu	Leu	Gly	Asp	Ser	Ser	Ser	Val	Arg	
		195					200					205				
Leu	Val	Glu	Met	Leu	Ala	Trp	Leu	Pro	Ala	Lys	Leu	Gly	Phe	Pro	Val	
	210					215					220					
Pro	Asp	Ala	Arg	Ala	Val	Ile	Glu	Gly	Arg	Leu	Asn	Gly	Asn	Ile	Ala	
225					230					235					240	
Asp	Ala	Arg	Ala	Trp	Ser	Gly	Leu	Leu	Val	Gly	Ser	Ile	Ala	Cys	Tyr	
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Gly	Ile	Leu	Pro	Arg	Leu	Leu	Ala	Trp	Ala	Val	Cys	Lys	Ile	Leu	Xaa	
		260						265					270			
Xaa	Thr	Ser	Glu	Asn	Gly	Leu	Asp	Leu	Glu	Lys	Xaa	Xaa	Xaa	Xaa	Xaa	
		275					280					285				

Xaa Ile Arg Arg Trp Gln Asn Lys Ile Thr Asp Ala Asp Thr Arg Arg
 290 295 300
 Glu Thr Val Ser Ala Val Ser Pro Lys Ile Val Leu Asn Asp Ala Pro
 305 310 315 320
 Lys Trp Ala Val Met Leu Glu Thr Glu Trp Gln Asp Gly Glu Trp Phe
 325 330 335
 Glu Gly Arg Leu Ala Gln Glu Trp Leu Asp Lys Gly Val Ala Ala Asn
 340 345 350
 Arg Glu Gln Val Ala Ala Leu Glu Thr Glu Leu Lys Gln Lys Pro Ala
 355 360 365
 Gln Leu Leu Ile Gly Val Arg Ala Gln Thr Val Pro Asp Arg Gly Val
 370 375 380
 Leu Arg Gln Ile Val Arg Leu Ser Glu Ala Ala Gln Gly Gly Ala Val
 385 390 395 400
 Val Xaa Leu Leu Ala Glu Gln Gly Leu Ser Asp Asp Leu Ser Glu Lys
 405 410 415
 Leu Glu His Trp Arg Asn Ala Leu Thr Glu Cys Gly Ala Ala Trp Leu
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 435 440 445

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<210> 203
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 <212> DNA
 <213> Neisseria gonorrhoeae

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 <212> PRT
 <213> Neisseria gonorrhoeae

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Phe	Phe	Leu	Val	Leu	Ala	Gly	Val	Leu	Gly	Met	Asn	Thr	Leu	Met	Leu	
50					55					60						
Ala	Val	Trp	Leu	Ala	Thr	Leu	Phe	Leu	Arg	Val	Lys	Val	Gly	Arg	Phe	
65					70					75					80	
Phe	Ser	Ser	Pro	Ala	Thr	Trp	Phe	Arg	Gly	Lys	Gly	Pro	Val	Asn	Gln	
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Ala	Val	Leu	Arg	Leu	Tyr	Ala	Asp	Gln	Trp	Arg	Gln	Pro	Ser	Val	Arg	
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Trp	Lys	Ile	Gly	Ala	Thr	Ala	His	Ser	Leu	Trp	Leu	Cys	Thr	Leu	Leu	
115					120					125						
Gly	Met	Leu	Val	Ser	Val	Leu	Leu	Leu	Leu	Val	Arg	Gln	Tyr	Thr		
130					135					140						
Phe	Asn	Trp	Glu	Ser	Thr	Leu	Leu	Ser	Asn	Ala	Ala	Ser	Val	Arg	Ala	
145					150					155					160	
Val	Glu	Met	Leu	Ala	Trp	Leu	Pro	Ser	Lys	Leu	Gly	Phe	Pro	Val	Pro	
165					170					175						
Asp	Ala	Arg	Ala	Val	Ile	Glu	Gly	Arg	Leu	Asn	Gly	Asn	Ile	Ala	Asp	
180					185					190						
Ala	Arg	Ala	Trp	Ser	Gly	Leu	Leu	Val	Gly	Ser	Ile	Val	Cys	Tyr	Gly	
195					200					205						
Ile	Leu	Pro	Arg	Leu	Leu	Ala	Trp	Val	Val	Cys	Lys	Ile	Leu	Leu	Lys	
210					215					220						
Thr	Ser	Glu	Asn	Gly	Leu	Asp	Leu	Glu	Lys	Thr	Tyr	Tyr	Gln	Ala	Val	
225					230					235					240	
Ile	Arg	Arg	Trp	Gln	Asn	Lys	Ile	Thr	Asp	Ala	Asp	Thr	Arg	Arg	Glu	
245					250					255						
Thr	Val	Ser	Ala	Val	Ser	Pro	Lys	Ile	Val	Leu	Asn	Asp	Ala	Pro	Lys	
260					265					270						
Trp	Ala	Leu	Met	Leu	Glu	Thr	Glu	Trp	Gln	Asp	Gly	Gln	Trp	Phe	Glu	
275					280					285						
Gly	Arg	Leu	Ala	Gln	Glu	Trp	Leu	Asp	Lys	Gly	Val	Ala	Ala	Asn	Arg	
290					295					300						
Glu	Gln	Val	Ala	Ala	Leu	Glu	Thr	Glu	Leu	Lys	Gln	Lys	Pro	Ala	Gln	
305					310					315					320	

Leu Leu Ile Gly Val Arg Ala Gln Thr Val Pro Asp Arg Gly Val Leu
325 330 335

Arg Gln Ile Val Arg Leu Ser Glu Ala Ala Gln Gly Gly Ala Val Val
340 345 350

Gln Leu Leu Ala Glu Gln Gly Leu Ser Asp Asp Leu Ser Glu Lys Leu
355 360 365

Glu His Trp Arg Asn Ala Leu Thr Glu Cys Gly Ala Ala Trp Leu Glu
370 375 380

Pro Asp Arg Val Ala Gln Glu Gly Arg Leu Lys Asp Gln
385 390 395

<210> 205

<211> 1341

<212> DNA

<213> Neisseria gonorrhoeae

<400> 205

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gaggaaaaaa	tcttcgcgtc	ggcggagatg	atcgacaggg	accgtatggt	gcgggacacg	180
ttggaacgtg	tgcgtgcggg	gtcgttctcg	ttatgggtgg	tgggtggcatc	gatgatgttt	240
accgccggat	tttcaggcac	ttatcttctg	atggacaatc	aggggctgaa	tttcttttta	300
gttttgccgg	gagtgttggg	catgaatacg	ctgatgctgg	cagtatggtt	ggcaacgttg	360
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cgatggaaaa	taggcgcaac	ggcgcacagc	ttgtggctct	gcacgctgct	cggaatgctg	540
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gatacgcgtc	gggaaaccgt	gtccgcggtt	tcgccgaaaa	tcgtcttgaa	cgatgcgccg	960
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gcgcaggaat	ggctggataa	gggcgttgcc	gccaatcggg	aacaggttgc	cgcgctggag	1080
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gaccggggcg	tgctgcggca	gattgtgcgg	ctttcggaag	cggcgagggg	cggcgcggtg	1200
gtgcagcttt	tggcggaaca	ggggctttca	gacgaccttt	cggaaaagct	ggaacattgg	1260
cgtaacgcgc	tgaccgaatg	cggcgcgggc	tggcttgagc	ctgacagggt	ggcgcaggaa	1320
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<210> 206

<211> 446

<212> PRT

<213> Neisseria gonorrhoeae

<400> 206

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 35 40 45
 Glu Met Ile Asp Arg Asp Arg Met Leu Arg Asp Thr Leu Glu Arg Val
 50 55 60
 Arg Ala Gly Ser Phe Trp Leu Trp Val Val Val Ala Ser Met Met Phe
 65 70 75 80
 Thr Ala Gly Phe Ser Gly Thr Tyr Leu Leu Met Asp Asn Gln Gly Leu
 85 90 95
 Asn Phe Phe Leu Val Leu Ala Gly Val Leu Gly Met Asn Thr Leu Met
 100 105 110
 Leu Ala Val Trp Leu Ala Thr Leu Phe Leu Arg Val Lys Val Gly Arg
 115 120 125
 Phe Phe Ser Ser Pro Ala Thr Trp Phe Arg Gly Lys Gly Pro Val Asn
 130 135 140
 Gln Ala Val Leu Arg Leu Tyr Ala Asp Gln Trp Arg Gln Pro Ser Val
 145 150 155 160
 Arg Trp Lys Ile Gly Ala Thr Ala His Ser Leu Trp Leu Cys Thr Leu
 165 170 175
 Leu Gly Met Leu Val Ser Val Leu Leu Leu Leu Val Arg Gln Tyr
 180 185 190
 Thr Phe Asn Trp Glu Ser Thr Leu Leu Ser Asn Ala Ala Ser Val Arg
 195 200 205
 Ala Val Glu Met Leu Ala Trp Leu Pro Ser Lys Leu Gly Phe Pro Val
 210 215 220
 Pro Asp Ala Arg Ala Val Ile Glu Gly Arg Leu Asn Gly Asn Ile Ala
 225 230 235 240
 Asp Ala Arg Ala Trp Ser Gly Leu Leu Val Gly Ser Ile Val Cys Tyr
 245 250 255
 Gly Ile Leu Pro Arg Leu Leu Ala Trp Val Val Cys Lys Ile Leu Leu
 260 265 270
 Lys Thr Ser Glu Asn Gly Leu Asp Leu Glu Lys Thr Tyr Tyr Gln Ala
 275 280 285
 Val Ile Arg Arg Trp Gln Asn Lys Ile Thr Asp Ala Asp Thr Arg Arg
 290 295 300
 Glu Thr Val Ser Ala Val Ser Pro Lys Ile Val Leu Asn Asp Ala Pro
 305 310 315 320
 Lys Trp Ala Leu Met Leu Glu Thr Glu Trp Gln Asp Gly Gln Trp Phe
 325 330 335

Glu Gly Arg Leu Ala Gln Glu Trp Leu Asp Lys Gly Val Ala Ala Asn
 340 345 350

Arg Glu Gln Val Ala Ala Leu Glu Thr Glu Leu Lys Gln Lys Pro Ala
 355 360 365

Gln Leu Leu Ile Gly Val Arg Ala Gln Thr Val Pro Asp Arg Gly Val
 370 375 380

Leu Arg Gln Ile Val Arg Leu Ser Glu Ala Ala Gln Gly Gly Ala Val
 385 390 395 400

Val Gln Leu Leu Ala Glu Gln Gly Leu Ser Asp Asp Leu Ser Glu Lys
 405 410 415

Leu Glu His Trp Arg Asn Ala Leu Thr Glu Cys Gly Ala Ala Trp Leu
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Glu Pro Asp Arg Val Ala Gln Glu Gly Arg Leu Lys Asp Gln
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 <212> DNA
 <213> Neisseria meningitidis

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 ttcgggggttc gggacggggg acgtttgtgg gcagtacggg ggtttctttg agtgtgtttt 180
 cagcttggtg tccggcgctg tccggctgcc tgtcggtttg agctgtgtcg gcaggttgcg 240
 gtttgaccg gtttttcttg ggtgcggcag gggacgtcat tctcctgccg ctttcgtctg 300
 tgccgtccgg ctgtgcgggt tcggatgagg cggcgtggtg gtgttcgggt tgggcggcat 360
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<210> 208
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 <213> Neisseria meningitidis

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Cys Ala Cys Phe Ser Gly Val Ser Phe Arg Gly Ser Gly Arg Gly Thr
35 40 45

Phe Val Gly Ser Thr Gly Val Ser Leu Ser Val Phe Ser Ala Cys Val
50 55 60

Xaa Gly Val Val Arg Leu Pro Val Gly Leu Ser Cys Val Gly Arg Leu
65 70 75 80

Xaa Xaa Leu Thr Arg Phe Phe Leu Gly Ala Ala Gly Asp Val Ile Leu
85 90 95

Leu Pro Leu Ser Ser Val Pro Ser Gly Cys Ala Gly Ser Asp Glu Ala
100 105 110

Ala Trp Trp Cys Ser Gly Trp Ala Ala Ser Cys Pro Thr Thr Pro Phe
115 120 125

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Ala Arg Val Leu Ser Ser
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ttggtatggt	tttctttggg	cgtttccttg	ggctgcgcct	gttttttcgg	tgtttctttt	180
cgggggttcgg	gacgggggac	gtttgtgggc	agtacggggg	tttctttgag	tgtgttttca	240
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aatgcgccga	tggcggcgat	acagatgagc	aatacggcgc	gtatcaggag	tttgggggtc	600
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cacgccttcg	gcggcctggt	cggaacgtgc	aatctgaccg	acgaactgtt	tttcgccttc	1020
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 <213> *Neisseria meningitidis*

<400> 210

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			20					25					30		
Gly	Val	Phe	Phe	Gly	Val	Ser	Gly	Leu	Val	Trp	Phe	Ser	Leu	Gly	Val
		35					40					45			
Ser	Leu	Gly	Cys	Ala	Cys	Phe	Ser	Gly	Val	Ser	Phe	Arg	Gly	Ser	Gly
	50					55					60				
Arg	Gly	Thr	Phe	Val	Gly	Ser	Thr	Gly	Val	Ser	Leu	Ser	Val	Phe	Ser
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Ala	Cys	Val	Pro	Ala	Ser	Ser	Gly	Cys	Leu	Ser	Val	Ala	Val	Ser	Ala
				85					90					95	
Gly	Cys	Gly	Leu	Thr	Arg	Phe	Phe	Leu	Gly	Ala	Ala	Gly	Asp	Gly	Ser
			100					105					110		
Pro	Leu	Pro	Leu	Ser	Ser	Val	Pro	Ser	Gly	Cys	Ala	Gly	Ser	Asp	Glu
		115					120					125			
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Phe	Gly	Ser	Gln	Asn	Ser	Val	Ser	Arg	Gly	Leu	Ser	Val	Cys	Cys	Gly
145					150					155				160	
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Ile	Ala	Asn	Ala	Pro	Met	Ala	Ala	Ile	Gln	Met	Ser	Asn	Thr	Ala	Arg
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		195					200					205			
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Ser	Asp	Gly	Ile	Ala	Glu	Ser	Ala	Leu	Asp	Val	Val	Leu	Val	Glu	Gly
225					230					235				240	

Asp Asp Phe Leu Tyr Ala Asp Gly Gly Ala Asp Phe Leu Gly Asn Leu
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 Arg Leu Phe Phe Gly Gly Glu Asp Ala His Asn Val Gly Tyr Val Ala
 260 265 270
 Val Gly Asn Asp Phe Asp Ala Arg Leu Cys Gly Gly Ala Asp Ala Gln
 275 280 285
 Gln Arg Gly Ala Asp Phe Gly Cys Val Pro Ser Val Ala Gly Asp Val
 290 295 300
 Ala Gly Ser Ala Arg Gln Gly Gly Asp Gly Asn Ile Val Val His Ala
 305 310 315 320
 Phe Gly Gly Leu Phe Gly Thr Cys Asn Leu Thr Asp Glu Leu Phe Phe
 325 330 335
 Ala Phe Gly Gly Asp Leu Ser Glu Gln Gln Gln Val Ala Val Val Ala
 340 345 350
 Asp Asp Gly Asp Leu Gly Arg Val Ala Phe Gly Leu Val Val Leu Ala
 355 360 365
 Gln Ile Gly Thr Gly Gly Gly Phe Asp Thr Gln Arg His Asn Val Val
 370 375 380
 Val Gly Leu Arg Ala Gly Gly Ser Ala Val Asp Gly Gly Phe Arg Ala
 385 390 395 400
 Asp Gly Gly Ala Ser Asp Tyr Cys Ala Asp Ala Ala Ala Lys Gly Lys
 405 410 415
 Ala Glu Asn Gly Gly Asn Gln Gly Ala Asp Gly Val Arg Phe Gly Phe
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 His Ala Val
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 <213> Neisseria meningitidis

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gcgggtcgac gcggatttcg cgcgcaccgc cgcgcgcgcg acgactgcgc tgacgcagcc 1260

gccgagggca aggctgagga cggcggcagt caggggtgcgg acggtgtgcg gtttgggttt 1320
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<210> 212
<211> 459
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<213> Neisseria meningitidis

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<223> Xaa= any amino acid

<400> 212

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35 40 45

Ser Xaa Ser Leu Gly Val Ser Xaa Gly Cys Ala Cys Phe Ser Gly Val
50 55 60

Ser Phe Arg Gly Ser Gly Arg Gly Thr Phe Val Gly Ser Thr Gly Val
65 70 75 80

Ser Leu Ser Val Phe Ser Ala Cys Ala Pro Ala Ser Ser Gly Cys Leu
85 90 95

Ser Val Xaa Ala Val Ser Ala Gly Cys Gly Leu Thr Arg Xaa Phe Xaa
100 105 110

Gly Ala Ala Gly Asp Gly Ser Pro Leu Pro Leu Ser Ser Val Pro Ser
115 120 125

Gly Cys Ala Gly Ala Asp Glu Glu Ala Xaa Xaa Cys Ser Gly Trp Ala
 130 135 140
 Ala Ser Cys Pro Thr Thr Pro Phe Gly Ser Gln Asn Ser Val Ser Arg
 145 150 155 160
 Gly Leu Ser Val Cys Cys Gly Ser Val Trp Arg Val Leu Ser Pro Phe
 165 170 175
 Gly Xaa Asn Val Leu Thr Met Pro Ile Ala Asn Ala Pro Met Ala Val
 180 185 190
 Ile Gln Met Ser Asn Thr Ala Arg Ile Arg Ser Leu Gly Val Ser Leu
 195 200 205
 Lys Gly Leu Phe Xaa Phe Phe Ala Ile Leu Ile Val Leu Leu Gly Cys
 210 215 220
 Arg Ala Met Pro Ser Glu Gly Gly Ser Asp Gly Ile Ala Glu Ser Ala
 225 230 235 240
 Leu Asp Val Val Xaa Val Glu Gly Asp Asp Phe Leu Tyr Ala Asp Gly
 245 250 255
 Gly Ala Asp Phe Leu Gly Asn Leu Arg Leu Phe Phe Gly Gly Glu Asp
 260 265 270
 Ala His Asn Val Gly Tyr Val Ala Val Gly Asn Asp Phe Asp Ala Arg
 275 280 285
 Leu Cys Gly Gly Ala Asp Ala Gln Gln Arg Gly Ala Asp Phe Gly Cys
 290 295 300
 Val Pro Ser Val Ala Gly Asp Val Ala Gly Ser Ala Arg Gln Gly Gly
 305 310 315 320
 Asp Gly Asn Val Xaa Val His Ala Phe Gly Gly Leu Phe Gly Thr Cys
 325 330 335
 Asn Leu Thr Asp Glu Leu Phe Leu Ala Phe Gly Gly Asp Leu Ser Glu
 340 345 350
 Gln Gln Gln Val Ala Val Val Ala Asp Asn Gly Asp Leu Gly Arg Val
 355 360 365
 Xaa Phe Gly Leu Val Val Leu Ala Gln Ile Gly Ala Gly Gly Gly Phe
 370 375 380
 Asp Thr Gln Arg His Tyr Val Val Val Gly Xaa Arg Ala Gly Gly Ser
 385 390 395 400
 Ala Val Asp Gly Gly Phe Arg Ala Asp Arg Arg Ala Ala Asp Asp Cys
 405 410 415
 Ala Asp Ala Ala Ala Glu Gly Lys Ala Glu Asp Gly Gly Ser Gln Gly
 420 425 430

Ala Asp Gly Val Arg Phe Gly Phe His Arg Val Leu Pro Phe Leu Gly
 435 440 445

Val Ser Asp Gly Ile Ala Leu Arg His Ala Val
 450 455

<210> 213
 <211> 1380
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 <213> Neisseria gonorrhoeae

<400> 213
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 <211> 459
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 214
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 35 40 45
 Ser Phe Ser Leu Gly Val Ser Leu Gly Cys Ala Cys Phe Ser Gly Val
 50 55 60
 Ser Phe Arg Gly Ser Gly Trp Gly Ala Phe Val Gly Ser Thr Gly Val
 65 70 75 80

Ser	Leu	Ser	Val	Phe	Ser	Ala	Cys	Val	Pro	Val	Pro	Val	Asn	Glu	Ser	85	90	95
Ala	Ala	Arg	Ala	Ala	Ser	Glu	Gly	Arg	Gly	Leu	Thr	Arg	Phe	Phe	Leu	100	105	110
Gly	Ala	Ala	Gly	Asp	Gly	Ser	Pro	Leu	Pro	Leu	Ser	Ser	Val	Pro	Ser	115	120	125
Gly	Cys	Ala	Gly	Ser	Asp	Glu	Ala	Ala	Trp	Trp	Cys	Ser	Gly	Trp	Ala	130	135	140
Ala	Ser	Cys	Pro	Thr	Ala	Pro	Phe	Gly	Ser	Gln	Asn	Ser	Val	Ser	Arg	145	150	155
Gly	Leu	Ser	Val	Cys	Cys	Gly	Ser	Val	Trp	Arg	Val	Leu	Ser	Pro	Phe	165	170	175
Gly	Leu	Asn	Val	Leu	Thr	Met	Pro	Thr	Ala	Asn	Ala	Pro	Met	Ala	Val	180	185	190
Ile	Gln	Met	Ser	Asn	Thr	Ala	Arg	Ile	Arg	Ser	Leu	Gly	Val	Ser	Leu	195	200	205
Lys	Gly	Leu	Phe	Gly	Phe	Phe	Ala	Ile	Leu	Ile	Val	Leu	Leu	Gly	Cys	210	215	220
Arg	Ala	Met	Pro	Ser	Glu	Gly	Gly	Ser	Asp	Gly	Ile	Ala	Glu	Ser	Ala	225	230	235
Leu	Asp	Val	Val	Leu	Val	Glu	Gly	Asn	Asp	Phe	Leu	Tyr	Ala	Asp	Gly	245	250	255
Gly	Ala	Asp	Phe	Leu	Gly	Asn	Leu	Arg	Leu	Phe	Phe	Gly	Gly	Glu	Asp	260	265	270
Ala	His	Asn	Val	Gly	Tyr	Ile	Ala	Val	Gly	Asn	Asp	Phe	Asp	Ala	Arg	275	280	285
Leu	Cys	Ser	Gly	Ala	Asp	Ala	Gln	Gln	Arg	Gly	Ala	Asp	Phe	Gly	Arg	290	295	300
Val	Pro	Ser	Val	Ala	Gly	Asp	Val	Ala	Arg	Ser	Ala	Arg	Gln	Gly	Gly	305	310	315
Asp	Gly	Asn	Val	Val	Val	Tyr	Ala	Phe	Gly	Gly	Leu	Phe	Gly	Thr	Cys	325	330	335
Asn	Leu	Thr	Asp	Glu	Leu	Phe	Phe	Ala	Phe	Gly	Gly	Asp	Leu	Ser	Glu	340	345	350
Gln	Gln	Gln	Val	Ala	Val	Val	Ala	Asp	Asp	Gly	Asp	Leu	Gly	Arg	Val	355	360	365
Ala	Phe	Gly	Leu	Val	Val	Leu	Ala	Gln	Val	Gly	Thr	Gly	Gly	Gly	Phe	370	375	380

Asp Thr Gln Arg His Asn Val Val Ile Gly Leu Arg Ala Gly Gly Ser
385 390 395 400

Ala Val Asp Asp Gly Phe Cys Ala Asp Gly Gly Pro Ala Asp Asp Cys
405 410 415

Ala Glu Ala Ala Ala Glu Gly Lys Ala Glu Asp Gly Gly Asn Gln Gly
420 425 430

Ala Asp Gly Val Trp Phe Gly Phe His Arg Gly Leu Pro Phe Leu Gly
435 440 445

Val Ser Asp Gly Ile Ala Leu Arg His Ala Val
450 455

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<211> 279
<212> DNA
<213> Neisseria meningitidis

<400> 215
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cgtaaaaaag aaatcgtctt cggcacgacc gtcggcgact tcggcgatat ggtcaaagaa 180
caaatccaag ccgagctgga gaaaaaaggc tacaccgtca aactggtcga gtttaccgac 240
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<210> 216
<211> 92
<212> PRT
<213> Neisseria meningitidis

<400> 216
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20 25 30
Ala Ala Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe Gly Thr
35 40 45
Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Ala Glu
50 55 60
Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp Tyr
65 70 75 80
Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu
85 90

<210> 217
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<213> Neisseria meningitidis

<400> 217

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gcgaaaaaag	aaatcgtctt	cggcacgacc	gtcggcgact	tcggcgatat	ggtcaaagaa	180
caaatccaag	cggagctgga	gaaaaaaggc	tacaccgtca	aactggtcga	gtttaccgac	240
tatgtacgcc	cgaatctggc	attggctgag	ggcgagttgg	acatcaacgt	cttccaacac	300
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gacggcagca	ccgtatccgc	gcccacgcac	ccgtccaact	tcgccgcgt	cttggtgatg	480
ctcgacgaac	tgggttgat	caaactcaaa	gacggcatca	atccgttgac	cgcatacaaa	540
gcggacatcg	ccgagaacct	gaaaaacatc	aaaatcgtcg	agcttgaagc	cgcgcaactg	600
ccgcgtagcc	gcgccgacgt	ggattttgcc	gtcgtcaacg	gcaactacgc	cataagcagc	660
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gccgtcaaaa	ccgccgacaa	agacagccaa	tggttaaaag	acgtaaccga	ggcctataac	780
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<210> 218

<211> 287

<212> PRT

<213> Neisseria meningitidis

<400> 218

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			20					25					30			
Ser	Ala	Ala	Ala	Asp	Asn	Gly	Ala	Ala	Lys	Lys	Glu	Ile	Val	Phe	Gly	
		35					40					45				
Thr	Thr	Val	Gly	Asp	Phe	Gly	Asp	Met	Val	Lys	Glu	Gln	Ile	Gln	Ala	
	50					55					60					
Glu	Leu	Glu	Lys	Lys	Gly	Tyr	Thr	Val	Lys	Leu	Val	Glu	Phe	Thr	Asp	
65					70					75					80	
Tyr	Val	Arg	Pro	Asn	Leu	Ala	Leu	Ala	Glu	Gly	Glu	Leu	Asp	Ile	Asn	
				85					90					95		
Val	Phe	Gln	His	Lys	Pro	Tyr	Leu	Asp	Asp	Phe	Lys	Lys	Glu	His	Asn	
		100						105					110			
Leu	Asp	Ile	Thr	Glu	Val	Phe	Gln	Val	Pro	Thr	Ala	Pro	Leu	Gly	Leu	
	115						120					125				
Tyr	Pro	Gly	Lys	Leu	Lys	Ser	Leu	Glu	Glu	Val	Lys	Asp	Gly	Ser	Thr	
	130					135						140				
Val	Ser	Ala	Pro	Asn	Asp	Pro	Ser	Asn	Phe	Ala	Arg	Val	Leu	Val	Met	
145				150						155					160	
Leu	Asp	Glu	Leu	Gly	Trp	Ile	Lys	Leu	Lys	Asp	Gly	Ile	Asn	Pro	Leu	
			165						170						175	

Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile
180 185 190

Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp
195 200 205

Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu
210 215 220

Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser
225 230 235 240

Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr
245 250 255

Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe
260 265 270

Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
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<210> 219
<211> 864
<212> DNA
<213> Neisseria meningitidis

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canatccaac	ccgagctgga	gaaaaaaggc	tacaccgtca	aactggtcga	gtntaccgac	240
tatgtgcgcn	cgaatctggc	attggctgag	ggcgagttgg	acatcaacgt	cttncaacac	300
anacnctatc	ttgacgactn	caaaaaanaa	cacaatctgg	acatcaccnn	agtcttncaa	360
gtgccgaccg	cgcttttggg	actgtaccgg	ggcaagctga	aatcgctgga	nnaagtcaaa	420
ganggcagca	ccgtatccgc	gcccacgcac	ccgtnnnact	tcgnccgcgt	cttggtgatg	480
ctcgacgaac	tgggttngat	caaactcaaa	gacngcatca	nnnngnngnn	nnnancnana	540
nnnganannn	nnnnannnnt	nnnnnnnnnn	nnnnncnncg	nnnnnnnnann	nnnnnnnnnn	600
ncgnntnnnn	nngcnnnnnt	nnannntnnn	nnnnnnnnnn	nnnnnnnnnn	nannannagc	660
ggcatgaagc	tgaccgaagc	cctgttccaa	gaaccgagct	ttgcctatgt	caactggtct	720
gccgtcaaaa	ccgccgacaa	agacagccaa	tggcttaaag	acgtaaccga	ggcctataac	780
tccgacgcgt	tcaaagccta	cgcgacacaa	cgcttcgagg	gctacaaatc	ccctgccgca	840
tggaatgaag	gcgcagccaa	ataa				864

<210> 220

<211> 287

<212> PRT

<213> Neisseria meningitidis

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			20					25					30			
Ser	Ala	Ala	Ala	Asp	Asn	Gly	Ala	Ala	Xaa	Lys	Glu	Ile	Val	Phe	Gly	
			35				40					45				
Thr	Thr	Val	Gly	Asp	Phe	Gly	Asp	Met	Val	Lys	Glu	Xaa	Ile	Gln	Pro	
	50					55					60					
Glu	Leu	Glu	Lys	Lys	Gly	Tyr	Thr	Val	Lys	Leu	Val	Glu	Xaa	Thr	Asp	
65					70					75				80		
Tyr	Val	Arg	Xaa	Asn	Leu	Ala	Leu	Ala	Glu	Gly	Glu	Leu	Asp	Ile	Asn	
				85					90					95		
Val	Xaa	Gln	His	Xaa	Xaa	Tyr	Leu	Asp	Asp	Xaa	Lys	Lys	Xaa	His	Asn	
			100					105					110			
Leu	Asp	Ile	Thr	Xaa	Val	Xaa	Gln	Val	Pro	Thr	Ala	Pro	Leu	Gly	Leu	
	115						120					125				
Tyr	Pro	Gly	Lys	Leu	Lys	Ser	Leu	Xaa	Xaa	Val	Lys	Xaa	Gly	Ser	Thr	
	130					135					140					
Val	Ser	Ala	Pro	Asn	Asp	Pro	Xaa	Xaa	Phe	Xaa	Arg	Val	Leu	Val	Met	
145					150					155					160	
Leu	Asp	Glu	Leu	Gly	Xaa	Ile	Lys	Leu	Lys	Asp	Xaa	Ile	Xaa	Xaa	Xaa	
				165					170				175			
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	
			180					185					190			
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Ala	Xaa	Xaa	Xaa	
		195					200					205				
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Ser	Gly	Met	Lys	Leu	
	210					215					220					
Thr	Glu	Ala	Leu	Phe	Gln	Glu	Pro	Ser	Phe	Ala	Tyr	Val	Asn	Trp	Ser	
225					230					235					240	
Ala	Val	Lys	Thr	Ala	Asp	Lys	Asp	Ser	Gln	Trp	Leu	Lys	Asp	Val	Thr	
				245					250					255		
Glu	Ala	Tyr	Asn	Ser	Asp	Ala	Phe	Lys	Ala	Tyr	Ala	His	Lys	Arg	Phe	
			260					265					270			
Glu	Gly	Tyr	Lys	Ser	Pro	Ala	Ala	Trp	Asn	Glu	Gly	Ala	Ala	Lys		
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 gcgaaaaaag aaatcgtctt cggcacgacc gtcggcgact tcggcgatat ggtcaaagaa 180
 caaatccaac ccgagctgga gaaaaaaggc tacaccgtca aactgggtcga gtttaccgac 240
 tatgtgcgcc cgaatctggc attggctgag ggcgagttgg acatcaacgt cttccaacac 300
 aaaccctatc ttgacgactt caaaaaagaa cacaatctgg acatcaccga agtcttccaa 360
 gtgccgaccg cgcctttggg actgtaccgc ccgtccaact aatcgctgga agaagtcaaa 420
 gacggcagca ccgtatccgc gcccaacgac ccgtccaact tcgccgcgt cttggtgatg 480
 ctgcagcaac tgggttgat caaactcaaa gacggcatca atccgctgac cgcattccaaa 540
 gcggacattg ccgaaaacct gaaaaacatc aaaatcgctg agcttgaagc cgcgcaactg 600
 ccgcgtagcc ggcgcgacgt ggattttgcc gtcgtcaacg gcaactacgc cataagcagc 660
 ggcattgaagc tgaccgaagc cctgttccaa gaaccgagct ttgcctatgt caactgggtct 720
 gccgtcaaaa ccgccgacaa agacagccaa tggtttaaag acgtaaccga ggccataaac 780
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 tggaatgaag ggcgcgcaaa ataa 864

<210> 222
 <211> 287
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 222
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 20 25 30
 Ser Ala Ala Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe Gly
 35 40 45
 Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln Pro
 50 55 60
 Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr Asp
 65 70 75 80
 Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile Asn
 85 90 95
 Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His Asn
 100 105 110
 Leu Asp Ile Thr Glu Val Phe Gln Val Pro Thr Ala Pro Leu Gly Leu
 115 120 125
 Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser Thr
 130 135 140
 Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Val Leu Val Met

145	150	155	160
Leu Asp Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro Leu	165	170	175
Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys Ile	180	185	190
Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val Asp	195	200	205
Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys Leu	210	215	220
Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp Ser	225	230	235
Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val Thr	245	250	255
Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg Phe	260	265	270
Glu Gly Tyr Lys Ser Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys	275	280	285

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 <212> DNA
 <213> Neisseria gonorrhoeae

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<210> 224
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 <213> Neisseria gonorrhoeae

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 20 25 30
 Ala Ala Pro Ser Ala Asp Asn Gly Ala Ala Lys Lys Glu Ile Val Phe
 35 40 45
 Gly Thr Thr Val Gly Asp Phe Gly Asp Met Val Lys Glu Gln Ile Gln
 50 55 60

Ala Glu Leu Glu Lys Lys Gly Tyr Thr Val Lys Leu Val Glu Phe Thr
 65 70 75 80
 Asp Tyr Val Arg Pro Asn Leu Ala Leu Ala Glu Gly Glu Leu Asp Ile
 85 90 95
 Asn Val Phe Gln His Lys Pro Tyr Leu Asp Asp Phe Lys Lys Glu His
 100 105 110
 Asn Leu Asp Ile Thr Glu Ala Phe Gln Val Pro Thr Ala Pro Leu Gly
 115 120 125
 Leu Tyr Pro Gly Lys Leu Lys Ser Leu Glu Glu Val Lys Asp Gly Ser
 130 135 140
 Thr Val Ser Ala Pro Asn Asp Pro Ser Asn Phe Ala Arg Ala Leu Val
 145 150 155 160
 Met Leu Asn Glu Leu Gly Trp Ile Lys Leu Lys Asp Gly Ile Asn Pro
 165 170 175
 Leu Thr Ala Ser Lys Ala Asp Ile Ala Glu Asn Leu Lys Asn Ile Lys
 180 185 190
 Ile Val Glu Leu Glu Ala Ala Gln Leu Pro Arg Ser Arg Ala Asp Val
 195 200 205
 Asp Phe Ala Val Val Asn Gly Asn Tyr Ala Ile Ser Ser Gly Met Lys
 210 215 220
 Leu Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp
 225 230 235 240
 Ser Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val
 245 250 255
 Thr Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg
 260 265 270
 Phe Glu Gly Tyr Lys Tyr Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285

<210> 225

<211> 867

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 225

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gcggcgaaaa	aagaaatcgt	cttcggcacg	accgtgggcg	acttcggcga	tatgggtcaaa	180
gaacaaatcc	aagccgagct	ggagaaaaaa	ggctacaccg	tcaaattggt	cgaatttacc	240
gactatgtgc	gcccgaatct	ggcattggcg	gagggcgagt	tggacatcaa	cgtcttccaa	300
cacaaaccct	atcttgacga	tttcaaaaaa	gaacacaacc	tggacatcac	cgaagccttc	360
caagtgcgca	cgcgccttt	gggactgtat	ccgggcaaac	tgaaatcgct	ggaagaagtc	420
aaagacggca	gcaccgtatc	cgcgcccaac	gaccgcgtcca	acttcgcacg	cgccttggtg	480

atgctgaacg	aactggggttg	gatcaaactc	aaagacggca	tcaatccgct	gaccgcatcc	540
aaagccgaca	tgcggaagaaa	cctgaaaaac	atcaaaatcg	tcgagcttga	agccgcacaa	600
ctgccgcgca	gccgcgccga	cgtggatttt	gccgtcgtca	acggcaacta	cgccataagc	660
agcggcatga	agctgaccga	agccctgttc	caagagccga	gctttgccta	tgtcaactgg	720
tctgccgtca	aaaccgccga	caaagacagc	caatggctta	aagacgtaac	cgaggcctat	780
aactccgacg	cgttcaaagc	ctacgcgcac	aaacgcttcg	agggctacaa	ataccctgcc	840
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<210> 226
 <211> 288
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 226

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			20					25						30	
Ala	Ala	Pro	Ser	Ala	Asp	Asn	Gly	Ala	Ala	Lys	Lys	Glu	Ile	Val	Phe
		35					40					45			
Gly	Thr	Thr	Val	Gly	Asp	Phe	Gly	Asp	Met	Val	Lys	Glu	Gln	Ile	Gln
	50					55					60				
Ala	Glu	Leu	Glu	Lys	Lys	Gly	Tyr	Thr	Val	Lys	Leu	Val	Glu	Phe	Thr
65				70					75					80	
Asp	Tyr	Val	Arg	Pro	Asn	Leu	Ala	Leu	Ala	Glu	Gly	Glu	Leu	Asp	Ile
				85				90						95	
Asn	Val	Phe	Gln	His	Lys	Pro	Tyr	Leu	Asp	Asp	Phe	Lys	Lys	Glu	His
		100						105					110		
Asn	Leu	Asp	Ile	Thr	Glu	Ala	Phe	Gln	Val	Pro	Thr	Ala	Pro	Leu	Gly
	115					120						125			
Leu	Tyr	Pro	Gly	Lys	Leu	Lys	Ser	Leu	Glu	Glu	Val	Lys	Asp	Gly	Ser
	130				135						140				
Thr	Val	Ser	Ala	Pro	Asn	Asp	Pro	Ser	Asn	Phe	Ala	Arg	Ala	Leu	Val
145					150					155				160	
Met	Leu	Asn	Glu	Leu	Gly	Trp	Ile	Lys	Leu	Lys	Asp	Gly	Ile	Asn	Pro
			165						170					175	
Leu	Thr	Ala	Ser	Lys	Ala	Asp	Ile	Ala	Glu	Asn	Leu	Lys	Asn	Ile	Lys
		180					185						190		
Ile	Val	Glu	Leu	Glu	Ala	Ala	Gln	Leu	Pro	Arg	Ser	Arg	Ala	Asp	Val
	195						200					205			
Asp	Phe	Ala	Val	Val	Asn	Gly	Asn	Tyr	Ala	Ile	Ser	Ser	Gly	Met	Lys
	210					215					220				

Leu Thr Glu Ala Leu Phe Gln Glu Pro Ser Phe Ala Tyr Val Asn Trp
 225 230 235 240

Ser Ala Val Lys Thr Ala Asp Lys Asp Ser Gln Trp Leu Lys Asp Val
 245 250 255

Thr Glu Ala Tyr Asn Ser Asp Ala Phe Lys Ala Tyr Ala His Lys Arg
 260 265 270

Phe Glu Gly Tyr Lys Tyr Pro Ala Ala Trp Asn Glu Gly Ala Ala Lys
 275 280 285

<210> 227⁹
 <211> 907
 <212> DNA
 <213> Neisseria meningitidis

<400> 227
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 tatgctcggc acggtcatcg ggctgggcgc ggggttgggc gttttatggc tgaaccagca 120
 ttatttccac ggcaacctcc tcttctacct caccgtcggc acggcaagcg cactggccgg 180
 ctgggcggcg gtcggcaaaa acggctacgt ccctmtgctg gcagggtga cgatgtgtat 240
 gctcatcggc gacaacggca gcgaatggct cgacagcgga ctcatgcgcg ccatgaacgt 300
 cctcatcggc gyggccatcg ccatcgccgc cgccaaactg ctgccgctga aatccacact 360
 gatgtggcgt ttcattgctt cgcacaacct ggccgactgc agcaaatga ttgccgaaat 420
 cagcaacggc aggcgcattga cccgcgaacg cctcgaggag aacatggcga aaatgcgcca 480
 aatcaacgca cgcattggtca aaagccgcag ccatctcgcc gccacatcgg gcgaaagctg 540
 catcagcccc gccatgatgg aagccatgca gcacgcccc acgtaaaatcg tcaacaccac 600
 cgagctgctc ctgaccaccg ccgccaagct gcaatctccc aaactcaacg gcagcgaaat 660
 ccggctgctt gaccgccact tcacactgct ccaaagcgag acacgcccgc cgcattccgca 720
 tcgacaccgc catcaacccc gaactggaag ccctcgccga acacctccac taccaatggc 780
 agggcttctt ctggctcagc accgatattg gtcaggaaat ttccgcccct gtcattcctgc 840
 tgcaacgcac ccgccgcaaa tggctggatg cccacgaacg ccaacacctg cgccaaagcc 900
 tgcttga 907

<210> 228
 <211> 301
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (72)..(72)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (195)..(195)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (224)..(224)
 <223> Xaa= any amino acid

<400> 228

Pro	Arg	Arg	Pro	Arg	His	Ala	Pro	Val	Ser	Arg	Gly	Asp	Leu	Leu	Gln	1	5	10	15
Gly	Gly	Gly	Thr	Tyr	Ala	Arg	His	Gly	His	Arg	Ala	Gly	Arg	Gly	Phe	20	25	30	
Gly	Arg	Phe	Met	Ala	Glu	Pro	Ala	Leu	Phe	Pro	Arg	Gln	Pro	Pro	Leu	35	40	45	
Leu	Pro	His	Arg	Arg	His	Gly	Lys	Arg	Thr	Gly	Arg	Leu	Gly	Gly	Gly	50	55	60	
Arg	Gln	Lys	Arg	Leu	Arg	Pro	Xaa	Ala	Gly	Arg	Ala	Asp	Asp	Val	Tyr	65	70	75	80
Ala	His	Arg	Arg	Gln	Arg	Gln	Arg	Met	Ala	Arg	Gln	Arg	Thr	His	Ala	85	90	95	
Arg	His	Glu	Arg	Pro	His	Arg	Arg	Gly	His	Arg	His	Arg	Arg	Arg	Gln	100	105	110	
Thr	Ala	Ala	Ala	Glu	Ile	His	Thr	Asp	Val	Ala	Phe	His	Ala	Cys	Arg	115	120	125	
Gln	Pro	Gly	Arg	Leu	Gln	Gln	Asn	Asp	Cys	Arg	Asn	Gln	Gln	Arg	Gln	130	135	140	
Ala	His	Asp	Pro	Arg	Thr	Pro	Arg	Gly	Glu	His	Gly	Glu	Asn	Ala	Pro	145	150	155	160
Asn	Gln	Arg	Thr	His	Gly	Gln	Lys	Pro	Gln	Pro	Ser	Arg	Arg	His	Ile	165	170	175	
Gly	Arg	Lys	Leu	His	Gln	Pro	Arg	His	Asp	Gly	Ser	His	Ala	Ala	Arg	180	185	190	
Pro	Pro	Xaa	Asn	Arg	Gln	His	His	Arg	Ala	Ala	Pro	Asp	His	Arg	Arg	195	200	205	
Gln	Ala	Ala	Ile	Ser	Gln	Thr	Gln	Arg	Gln	Arg	Asn	Pro	Ala	Ala	Xaa	210	215	220	
Pro	Pro	Leu	His	Thr	Ala	Pro	Asn	Gln	Thr	Arg	Pro	Pro	His	Pro	His	225	230	235	240
Arg	His	Arg	His	Gln	Pro	Arg	Thr	Gly	Ser	Pro	Arg	Arg	Thr	Pro	Pro	245	250	255	
Leu	Pro	Met	Ala	Gly	Leu	Pro	Leu	Ala	Gln	His	Arg	Tyr	Ala	Ser	Gly	260	265	270	
Asn	Phe	Arg	Pro	Arg	His	Pro	Ala	Ala	Thr	His	Pro	Pro	Gln	Met	Ala	275	280	285	
Gly	Cys	Pro	Arg	Thr	Pro	Thr	Pro	Ala	Pro	Lys	Pro	Ala	290	295	300				

<210> 229
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 229
 nnnnnnnnn

8

<210> 230
 <211> 318
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 230

Met	Asp	Arg	Asp	Asp	Arg	Leu	Arg	Arg	Pro	Arg	His	Ala	Pro	Val	Pro
1			5						10					15	
Arg	Arg	Asp	Leu	Leu	Gln	Arg	Gly	Gly	Thr	Tyr	Ala	Arg	Tyr	Gly	His
			20					25					30		
Arg	Ala	Gly	Arg	Gly	Phe	Gly	Arg	Phe	Met	Ala	Glu	Pro	Ala	Leu	Phe
		35					40					45			
Pro	Arg	Gln	Pro	Pro	Leu	Leu	Pro	Asp	His	Arg	His	Gly	Lys	Arg	Thr
		50				55					60				
Gly	Arg	Leu	Gly	Gly	Gly	Arg	Gln	Lys	Arg	Leu	Arg	Pro	Tyr	Val	Gly
65					70					75					80
Gly	Ala	Asp	Asp	Val	His	Ala	His	Arg	Arg	Gln	Arg	Gln	Arg	Met	Ala
				85					90					95	
Arg	Gln	Arg	Pro	Asp	Ala	Arg	Asp	Glu	Arg	Pro	His	Arg	Arg	Arg	His
			100					105					110		
Arg	His	Cys	Arg	Arg	Gln	Thr	Ala	Ala	Ala	Glu	Ile	His	Thr	Asp	Val
		115					120					125			
Ala	Phe	His	Ala	Cys	Arg	Gln	Pro	Gly	Arg	Leu	Gln	Gln	Asn	Asp	Cys
	130					135					140				
Arg	Asn	Gln	Gln	Arg	Gln	Ala	Tyr	Asp	Ala	Arg	Thr	Phe	Gly	Ala	Glu
145					150				155					160	
Tyr	Gly	Gln	Asn	Ala	Pro	Asn	Gln	Arg	Thr	His	Gly	Gln	Lys	Pro	Gln
			165					170						175	
Pro	Pro	Arg	Arg	His	Ile	Gly	Arg	Lys	Pro	His	Gln	Pro	Leu	His	Asp
			180					185					190		
Gly	Ser	His	Ala	Ala	Arg	Pro	Pro	Gln	Asn	Arg	Gln	His	His	Arg	Ala

195	200	205
Ala Pro Asp His Arg Arg Gln Ala Ala Ile Ser Gln Thr Gln Arg Gln 210 215 220		
Arg Asn Pro Ala Ala Arg Pro Pro Leu His Thr Ala Pro Asn Arg Pro 225 230 235 240		
Ala Thr Asn Arg Arg Pro His Gln Arg Gln Thr Arg Pro Pro His Pro 245 250 255		
His Arg His Arg His Gln Pro Arg Thr Gly Ser Pro Arg Arg Thr Pro 260 265 270		
Pro Leu Pro Met Ala Gly Phe Pro Leu Ala Gln His Gln Tyr Ala Ser 275 280 285		
Gly Asn Phe Arg Pro Arg His Pro Pro Ala Thr His Pro Pro Gln Met 290 295 300		
Ala Gly Cys Pro Arg Thr Pro Thr Pro Ala Pro Lys Pro Ala 305 310 315		

<210> 231
 <211> 567
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (22)..(22)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (40)..(40)
 <223> N= Unknown

<400> 231	
gaaatcagcc tgcggtccga cnacaggccg gtttccgtgn cgaagcggcg ggattcggaa	60
cgttttctgc tgttgacgg cggcaacagc cggtcaagt gggcgtgggt ggaaaacggc	120
acgttcgcaa ccgtcggtag cgcgccgtac cgcgatttgt cgcctttggg cgcggagtgg	180
gcggaaaagg cggatggaaa tgtccgcacg gtcggttgcg ctgtgtgcgg agaattcaaa	240
aaggcacaag tgcaggaaca gtcgccccga aaaatcgagt ggctgccgtc ttccgcacag	300
gctttggcat acgcaaccac taccgccacc ccgaagaaca cggttccgac cgctggttca	360
acgccttggg cagccgccgc ttcagccgca acgcctgcgt cgtcgtcagt tgcggcacgg	420
cggtaacggg tgacgcgctc accgatgacg gacattatct cggagaggaa ccatcatgcc	480
cggtttccac ctgatgaaag aatcgctcgc cgtccgaacc gccaacctca accggcacgc	540
cggtaagcgt tatectttcc cgaccgg	567

<210> 232
 <211> 189
 <212> PRT
 <213> Neisseria meningitidis

<220>

<221> misc_feature
<222> (8)..(8)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (14)..(14)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (102)..(102)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (156)..(156)
<223> Xaa= any amino acid

<400> 232
Glu Ile Ser Leu Arg Ser Asp Xaa Arg Pro Val Ser Val Xaa Lys Arg
1 5 10 15
Arg Asp Ser Glu Arg Phe Leu Leu Leu Asp Gly Gly Asn Ser Arg Leu
20 25 30
Lys Trp Ala Trp Val Glu Asn Gly Thr Phe Ala Thr Val Gly Ser Ala
35 40 45
Pro Tyr Arg Asp Leu Ser Pro Leu Gly Ala Glu Trp Ala Glu Lys Ala
50 55 60
Asp Gly Asn Val Arg Ile Val Gly Cys Ala Val Cys Gly Glu Phe Lys
65 70 75 80
Lys Ala Gln Val Gln Glu Gln Leu Ala Arg Lys Ile Glu Trp Leu Pro
85 90 95
Ser Ser Ala Gln Ala Xaa Gly Ile Arg Asn His Tyr Arg His Pro Glu
100 105 110
Glu His Gly Ser Asp Arg Trp Phe Asn Ala Leu Gly Ser Arg Arg Phe
115 120 125
Ser Arg Asn Ala Cys Val Val Val Ser Cys Gly Thr Ala Val Thr Val
130 135 140
Asp Ala Leu Thr Asp Asp Gly His Tyr Leu Gly Xaa Gly Thr Ile Met
145 150 155 160
Pro Gly Phe His Leu Met Lys Glu Ser Leu Ala Val Arg Thr Ala Asn
165 170 175
Leu Asn Arg His Ala Gly Lys Arg Tyr Pro Phe Pro Thr
180 185

<210> 233
 <211> 1779
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 233
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 caacacgtct cgcaactggc gcgtatggcg gatatgaagc cgcagcagct caacggtttt 120
 tggcagcaga tgccggcgca catacgcggg ctgttgcgcc aacacgacgg ctattggcgg 180
 ctggtgcgcc cattggcggg ttctgatgcc gaaggtttgc gcgagctggg ggaaaggtcg 240
 gggttttcaga cggcattgaa gcacgagtgc gcgtccagca acgacgagat actggaattg 300
 gcgcggattg cgccggacaa ggcgcacaaa accatatgcg tgacccacct gcaaagtaag 360
 ggcagggggg ggcagggggc gaagtggtcg caccgtttgg gcgagtgtct gatgttcagt 420
 tttggctggg tgtttgaccg gccgcagtat gagttgggtt cgctgtcgcc tgttgccgca 480
 gtggcggtgc ggcgcgctt gtgcggttta gggttggatg tgcagattaa gtggcccaat 540
 gatttggttg tcggacgcga caaattgggc ggcattctga ttgaaacggg caggacgggc 600
 ggcaaaacgg ttgccgtggg cggatcggc atcaattttg tcctgcccga ggaaagtagaa 660
 aatgccgctt ccgtgcaatc gctgtttcag acggcatcgc ggccggggcaa tgccgatgcc 720
 gccgtgctgc tggaaacgct gttggtggaa ctggacgcgg tgttgttgca atatgcgcgg 780
 gacggatttg cgccttttgt ggcggaatat caggctgcca accgcgacca cggcaaggcg 840
 gtattgctgt tgcgcgacgg cgaaaccgtg ttcaaggca cggttaaagg cgtggacgga 900
 caaggcggtt tgcaattgga aacggcagag ggcaaacaga cggtcgtcag cggcgaaatc 960
 agcctgcggg ccgacgacag gccggtttcc gtgcccgaagc ggccgggattc ggaacgtttt 1020
 ctgctgttgg acggcgggcaa cagccggctc aagtgggcgt ggggtggaaaa cggcacgttc 1080
 gcaaccgtcg gtagcgcgcc gtaccgcgat ttgtgcctt tgggcgcgga gtgggcggaa 1140
 aaggcggatg gaaatgtccg catcgtcggg tgcgctgtgt gcggagaatt caaaaaggca 1200
 caagtgcagg aacagctcgc ccgaaaaatc gagggtgctg cgtcttccgc acaggccttg 1260
 ggcatacgcga accactaccg ccaccccga gaacacgggt ccgaccgctg gttcaacgcc 1320
 ttgggcagcc gccgcttcag ccgcaacgcc tgcgtcgtcg tcagttgcgg cacggcggtg 1380
 acggttgacg cgctcaccga tgacggacat tatctcgggg gaaccatcat gcccggtttc 1440
 cacctgatga aagaatcgct cgccgtccga accgccaaacc tcaaccggca cgcgggtaag 1500
 cgttatcctt tcccaccac aacgggcaat gccgtcgcca gcggcatgat ggatgcgggt 1560
 tgccgctcgg ttatgatgat gcacgggcgt ttgaaagaaa aaaccggggc gggcaagcct 1620
 gtcgatgtca tcattaccgg cggcggcgcg gcaaaagttg ccgaagccct gccgcctgca 1680
 tttttggcgg aaaataccgt gcgcgtggcg gacaacctcg tcatttacgg gttgttgaac 1740
 atgattgccg ccgaaggcag ggaatatgaa catatttaa 1779

<210> 234
 <211> 592
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 234
 Met Thr Val Leu Lys Leu Ser His Trp Arg Val Leu Ala Glu Leu Ala
 1 5 10 15
 Asp Gly Leu Pro Gln His Val Ser Gln Leu Ala Arg Met Ala Asp Met
 20 25 30
 Lys Pro Gln Gln Leu Asn Gly Phe Trp Gln Gln Met Pro Ala His Ile
 35 40 45
 Arg Gly Leu Leu Arg Gln His Asp Gly Tyr Trp Arg Leu Val Arg Pro
 50 55 60
 Leu Ala Val Phe Asp Ala Glu Gly Leu Arg Glu Leu Gly Glu Arg Ser

65				70				75				80			
Gly	Phe	Gln	Thr	Ala	Leu	Lys	His	Glu	Cys	Ala	Ser	Ser	Asn	Asp	Glu
				85					90					95	
Ile	Leu	Glu	Leu	Ala	Arg	Ile	Ala	Pro	Asp	Lys	Ala	His	Lys	Thr	Ile
			100					105					110		
Cys	Val	Thr	His	Leu	Gln	Ser	Lys	Gly	Arg	Gly	Arg	Gln	Gly	Arg	Lys
		115					120					125			
Trp	Ser	His	Arg	Leu	Gly	Glu	Cys	Leu	Met	Phe	Ser	Phe	Gly	Trp	Val
	130					135					140				
Phe	Asp	Arg	Pro	Gln	Tyr	Glu	Leu	Gly	Ser	Leu	Ser	Pro	Val	Ala	Ala
145					150					155					160
Val	Ala	Cys	Arg	Arg	Ala	Leu	Ser	Arg	Leu	Gly	Leu	Asp	Val	Gln	Ile
				165					170					175	
Lys	Trp	Pro	Asn	Asp	Leu	Val	Val	Gly	Arg	Asp	Lys	Leu	Gly	Gly	Ile
			180					185					190		
Leu	Ile	Glu	Thr	Val	Arg	Thr	Gly	Gly	Lys	Thr	Val	Ala	Val	Val	Gly
		195					200					205			
Ile	Gly	Ile	Asn	Phe	Val	Leu	Pro	Lys	Glu	Val	Glu	Asn	Ala	Ala	Ser
	210					215					220				
Val	Gln	Ser	Leu	Phe	Gln	Thr	Ala	Ser	Arg	Arg	Gly	Asn	Ala	Asp	Ala
225					230					235					240
Ala	Val	Leu	Leu	Glu	Thr	Leu	Leu	Val	Glu	Leu	Asp	Ala	Val	Leu	Leu
				245					250					255	
Gln	Tyr	Ala	Arg	Asp	Gly	Phe	Ala	Pro	Phe	Val	Ala	Glu	Tyr	Gln	Ala
			260					265					270		
Ala	Asn	Arg	Asp	His	Gly	Lys	Ala	Val	Leu	Leu	Leu	Arg	Asp	Gly	Glu
		275				280						285			
Thr	Val	Phe	Glu	Gly	Thr	Val	Lys	Gly	Val	Asp	Gly	Gln	Gly	Val	Leu
	290					295					300				
His	Leu	Glu	Thr	Ala	Glu	Gly	Lys	Gln	Thr	Val	Val	Ser	Gly	Glu	Ile
305					310					315					320
Ser	Leu	Arg	Ser	Asp	Asp	Arg	Pro	Val	Ser	Val	Pro	Lys	Arg	Arg	Asp
				325					330					335	
Ser	Glu	Arg	Phe	Leu	Leu	Leu	Asp	Gly	Gly	Asn	Ser	Arg	Leu	Lys	Trp
			340					345					350		
Ala	Trp	Val	Glu	Asn	Gly	Thr	Phe	Ala	Thr	Val	Gly	Ser	Ala	Pro	Tyr
		355					360					365			

Arg Asp Leu Ser Pro Leu Gly Ala Glu Trp Ala Glu Lys Ala Asp Gly
 370 375 380
 Asn Val Arg Ile Val Gly Cys Ala Val Cys Gly Glu Phe Lys Lys Ala
 385 390 395 400
 Gln Val Gln Glu Gln Leu Ala Arg Lys Ile Glu Trp Leu Pro Ser Ser
 405 410 415
 Ala Gln Ala Leu Gly Ile Arg Asn His Tyr Arg His Pro Glu Glu His
 420 425 430
 Gly Ser Asp Arg Trp Phe Asn Ala Leu Gly Ser Arg Arg Phe Ser Arg
 435 440 445
 Asn Ala Cys Val Val Val Ser Cys Gly Thr Ala Val Thr Val Asp Ala
 450 455 460
 Leu Thr Asp Asp Gly His Tyr Leu Gly Gly Thr Ile Met Pro Gly Phe
 465 470 475 480
 His Leu Met Lys Glu Ser Leu Ala Val Arg Thr Ala Asn Leu Asn Arg
 485 490 495
 His Ala Gly Lys Arg Tyr Pro Phe Pro Thr Thr Thr Gly Asn Ala Val
 500 505 510
 Ala Ser Gly Met Met Asp Ala Val Cys Gly Ser Val Met Met Met His
 515 520 525
 Gly Arg Leu Lys Glu Lys Thr Gly Ala Gly Lys Pro Val Asp Val Ile
 530 535 540
 Ile Thr Gly Gly Gly Ala Ala Lys Val Ala Glu Ala Leu Pro Pro Ala
 545 550 555 560
 Phe Leu Ala Glu Asn Thr Val Arg Val Ala Asp Asn Leu Val Ile Tyr
 565 570 575
 Gly Leu Leu Asn Met Ile Ala Ala Glu Gly Arg Glu Tyr Glu His Ile
 580 585 590

<210> 235
 <211> 1779
 <212> DNA
 <213> Neisseria meningitidis

<400> 235
 atgacgggttt tgaagccttc gcactggcgg gtgttggcgg agcttgccga cggtttgccg 60
 caacacgtct cgcaactggc gcgtatggcg gatatgaagc cgcagcagct caacggtttt 120
 tggcagcaga tgccggcgca catacgcggg ctgttgcgcc aacacgacgg ctattggcgg 180
 ctggtgcgcc cattggcggg tttcgatgcc gaaggtttgc gcgagctggg ggaaaggctg 240
 ggttttcaga cggcattgaa gcacgagtg gcgtccagca acgacgagat actggaattg 300
 gcgcgggatt cgccggacaa ggcgcacaaa accatatgtg tgaccacact gcaaagtaag 360
 ggcagggggc ggcagggggc gaagtggtcg caccgtttgg gcgagtgtct gatgttcagt 420
 tttggctggg tgtttgaccg gccgcagtat gagttgggtt cgctgtcgcc tgttgcggca 480

gtggcggtgcc	ggcgcgccctt	gtcgcggtttg	ggtttgaaaa	cgcaaatcaa	gtggccaaac	540
gatttggctcg	tccgacgcga	caaattgggc	ggcattctga	ttgaaacggt	caggacgggc	600
ggcaaaacgg	ttgccgtggt	cggatcggc	atcaatttcg	tgctgcccaa	ggaagtggaa	660
aacgccgctt	ccgtgcaatc	gctgtttcag	acggcatcgc	ggcggggaaa	tgccgatgcc	720
gccgtgttgc	tggaaacgct	gttggcggaa	cttgatgcgg	tggtgttgca	atatgcgcgg	780
gacggatttg	cgccttttgt	ggcggaatat	caggctgcca	accgcgacca	cggcaaggcg	840
gtattgctgt	tgcgcgacgg	cgaaaccgtg	ttcgaaggca	cggttaaagg	cgtggacgga	900
caaggcgttc	tgcacttgga	aacggcagag	ggcaaacaga	cggtcgtcag	cggcgaaatc	960
agcctgcggt	ccgacgacag	gccggtttcc	gtgccgaagc	ggcgggattc	ggaacgtttt	1020
ctgctgttgg	acggcgggcaa	cagccggctc	aagtgggctg	gggtggaaaa	cggcacgttc	1080
gcaaccgtcg	gtagcgcgcg	gtaccgcgat	ttgtcgcctt	tgggcgcgga	gtgggcggaa	1140
aagggtggatg	gaaatgtccg	catcgtcggg	tgcgcgcgtg	gcggagaatt	caaaaaggca	1200
caagtgcagg	aacagctcgc	ccgaaaaatc	gagtggtgc	cgtcttccgc	acaggctttg	1260
ggcatacgca	accactaccg	ccaccccgaa	gaacacggtt	ccgaccgctg	gttcaacgcc	1320
ttgggcagcc	gccgcttcag	ccgcaacgcc	tgcgtcgtcg	tcagttgcgg	cacggcggtg	1380
acggttgacg	cgctcaccga	tgacggacat	tatctcgggg	gaaccatcat	gcccggtttc	1440
cacctgatga	aagaatcgct	cgcggtccga	accgcccaacc	tcaaccggca	cgcgggtaag	1500
cgttatcctt	tcccgaaccac	aacgggcaat	gccgtcgcca	gcggcatgat	ggatgcgggt	1560
tgcggtcgcg	ttatgatgat	gcacgggcgt	ttgaaagaaa	aaaccggggc	gggcaagcct	1620
gtcgatgtca	tcattaccgg	cggcggcgcg	gcaaaagttg	ccgaagccct	gccgcctgca	1680
tttttggcgg	aaaataccgt	gcgcgtggcg	gacaacctcg	tcattcacgg	gctgctgaac	1740
ctgattgccg	ccgaaggcgg	ggaatcggaa	catacttaa			1779

<210> 236
 <211> 592
 <212> PRT
 <213> Neisseria meningitidis

<400> 236
 Met Thr Val Leu Lys Pro Ser His Trp Arg Val Leu Ala Glu Leu Ala
 1 5 10 15
 Asp Gly Leu Pro Gln His Val Ser Gln Leu Ala Arg Met Ala Asp Met
 20 25 30
 Lys Pro Gln Gln Leu Asn Gly Phe Trp Gln Gln Met Pro Ala His Ile
 35 40 45
 Arg Gly Leu Leu Arg Gln His Asp Gly Tyr Trp Arg Leu Val Arg Pro
 50 55 60
 Leu Ala Val Phe Asp Ala Glu Gly Leu Arg Glu Leu Gly Glu Arg Ser
 65 70 75 80
 Gly Phe Gln Thr Ala Leu Lys His Glu Cys Ala Ser Ser Asn Asp Glu
 85 90 95
 Ile Leu Glu Leu Ala Arg Ile Ala Pro Asp Lys Ala His Lys Thr Ile
 100 105 110
 Cys Val Thr His Leu Gln Ser Lys Gly Arg Gly Arg Gln Gly Arg Lys
 115 120 125
 Trp Ser His Arg Leu Gly Glu Cys Leu Met Phe Ser Phe Gly Trp Val
 130 135 140

Phe	Asp	Arg	Pro	Gln	Tyr	Glu	Leu	Gly	Ser	Leu	Ser	Pro	Val	Ala	Ala	
145					150					155					160	
Val	Ala	Cys	Arg	Arg	Ala	Leu	Ser	Arg	Leu	Gly	Leu	Lys	Thr	Gln	Ile	
				165					170					175		
Lys	Trp	Pro	Asn	Asp	Leu	Val	Val	Gly	Arg	Asp	Lys	Leu	Gly	Gly	Ile	
			180					185					190			
Leu	Ile	Glu	Thr	Val	Arg	Thr	Gly	Gly	Lys	Thr	Val	Ala	Val	Val	Gly	
	195						200					205				
Ile	Gly	Ile	Asn	Phe	Val	Leu	Pro	Lys	Glu	Val	Glu	Asn	Ala	Ala	Ser	
	210					215					220					
Val	Gln	Ser	Leu	Phe	Gln	Thr	Ala	Ser	Arg	Arg	Gly	Asn	Ala	Asp	Ala	
225					230					235					240	
Ala	Val	Leu	Leu	Glu	Thr	Leu	Leu	Ala	Glu	Leu	Asp	Ala	Val	Leu	Leu	
				245					250					255		
Gln	Tyr	Ala	Arg	Asp	Gly	Phe	Ala	Pro	Phe	Val	Ala	Glu	Tyr	Gln	Ala	
			260					265						270		
Ala	Asn	Arg	Asp	His	Gly	Lys	Ala	Val	Leu	Leu	Leu	Arg	Asp	Gly	Glu	
		275					280					285				
Thr	Val	Phe	Glu	Gly	Thr	Val	Lys	Gly	Val	Asp	Gly	Gln	Gly	Val	Leu	
	290						295				300					
His	Leu	Glu	Thr	Ala	Glu	Gly	Lys	Gln	Thr	Val	Val	Ser	Gly	Glu	Ile	
305					310					315					320	
Ser	Leu	Arg	Ser	Asp	Asp	Arg	Pro	Val	Ser	Val	Pro	Lys	Arg	Arg	Asp	
				325					330					335		
Ser	Glu	Arg	Phe	Leu	Leu	Leu	Asp	Gly	Gly	Asn	Ser	Arg	Leu	Lys	Trp	
			340					345					350			
Ala	Trp	Val	Glu	Asn	Gly	Thr	Phe	Ala	Thr	Val	Gly	Ser	Ala	Pro	Tyr	
		355					360					365				
Arg	Asp	Leu	Ser	Pro	Leu	Gly	Ala	Glu	Trp	Ala	Glu	Lys	Val	Asp	Gly	
	370					375					380					
Asn	Val	Arg	Ile	Val	Gly	Cys	Ala	Val	Cys	Gly	Glu	Phe	Lys	Lys	Ala	
385					390					395					400	
Gln	Val	Gln	Glu	Gln	Leu	Ala	Arg	Lys	Ile	Glu	Trp	Leu	Pro	Ser	Ser	
				405					410					415		
Ala	Gln	Ala	Leu	Gly	Ile	Arg	Asn	His	Tyr	Arg	His	Pro	Glu	Glu	His	
			420					425					430			
Gly	Ser	Asp	Arg	Trp	Phe	Asn	Ala	Leu	Gly	Ser	Arg	Arg	Phe	Ser	Arg	
		435					440					445				

Asn Ala Cys Val Val Val Ser Cys Gly Thr Ala Val Thr Val Asp Ala
 450 455 460
 Leu Thr Asp Asp Gly His Tyr Leu Gly Gly Thr Ile Met Pro Gly Phe
 465 470 475 480
 His Leu Met Lys Glu Ser Leu Ala Val Arg Thr Ala Asn Leu Asn Arg
 485 490 495
 His Ala Gly Lys Arg Tyr Pro Phe Pro Thr Thr Thr Gly Asn Ala Val
 500 505 510
 Ala Ser Gly Met Met Asp Ala Val Cys Gly Ser Val Met Met Met His
 515 520 525
 Gly Arg Leu Lys Glu Lys Thr Gly Ala Gly Lys Pro Val Asp Val Ile
 530 535 540
 Ile Thr Gly Gly Gly Ala Ala Lys Val Ala Glu Ala Leu Pro Pro Ala
 545 550 555 560
 Phe Leu Ala Glu Asn Thr Val Arg Val Ala Asp Asn Leu Val Ile His
 565 570 575
 Gly Leu Leu Asn Leu Ile Ala Ala Glu Gly Gly Glu Ser Glu His Thr
 580 585 590

<210> 237
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 237
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8

<210> 238
 <211> 455
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 238
 Met Phe Ser Phe Gly Trp Ala Phe Asp Arg Pro Gln Tyr Glu Leu Gly
 1 5 10 15
 Ser Leu Ser Pro Val Ala Ala Leu Ala Cys Arg Arg Ala Leu Gly Cys
 20 25 30
 Leu Gly Leu Glu Thr Gln Ile Lys Trp Pro Asn Asp Leu Val Val Gly
 35 40 45
 Arg Asp Lys Leu Gly Gly Ile Leu Ile Glu Thr Val Arg Ala Gly Gly

50					55					60					
Lys	Thr	Val	Ala	Val	Val	Gly	Ile	Gly	Ile	Asn	Phe	Val	Leu	Pro	Lys
65					70					75					80
Glu	Val	Glu	Asn	Ala	Ala	Ser	Val	Gln	Ser	Leu	Phe	Gln	Thr	Ala	Ser
			85						90					95	
Arg	Arg	Gly	Asn	Ala	Asp	Ala	Ala	Val	Leu	Leu	Glu	Thr	Leu	Leu	Ala
			100					105					110		
Glu	Leu	Gly	Ala	Val	Leu	Glu	Gln	Tyr	Ala	Glu	Glu	Gly	Phe	Ala	Pro
		115					120					125			
Phe	Leu	Asn	Glu	Tyr	Glu	Thr	Ala	Asn	Arg	Asp	His	Gly	Lys	Ala	Val
	130					135					140				
Leu	Leu	Leu	Arg	Asp	Gly	Glu	Thr	Val	Cys	Glu	Gly	Thr	Val	Lys	Gly
145					150					155					160
Val	Asp	Gly	Arg	Gly	Val	Leu	His	Leu	Glu	Thr	Ala	Glu	Gly	Glu	Gln
				165					170					175	
Thr	Val	Val	Ser	Gly	Glu	Ile	Ser	Leu	Arg	Pro	Asp	Asn	Arg	Ser	Val
			180					185					190		
Ser	Val	Pro	Lys	Arg	Pro	Asp	Ser	Glu	Arg	Phe	Leu	Leu	Leu	Glu	Gly
		195					200					205			
Gly	Asn	Ser	Arg	Leu	Lys	Trp	Ala	Trp	Val	Glu	Asn	Gly	Thr	Phe	Ala
	210					215					220				
Thr	Val	Gly	Ser	Ala	Pro	Tyr	Arg	Asp	Leu	Ser	Pro	Leu	Gly	Ala	Glu
225					230					235					240
Trp	Ala	Glu	Lys	Ala	Asp	Gly	Asn	Val	Arg	Ile	Val	Gly	Cys	Ala	Val
				245					250					255	
Cys	Gly	Glu	Ser	Lys	Lys	Ala	Gln	Val	Lys	Glu	Gln	Leu	Ala	Arg	Lys
			260					265					270		
Ile	Glu	Trp	Leu	Pro	Ser	Ser	Ala	Gln	Ala	Leu	Gly	Ile	Arg	Asn	His
	275						280					285			
Tyr	Arg	His	Pro	Glu	Glu	His	Gly	Ser	Asp	Arg	Trp	Phe	Asn	Ala	Leu
	290					295					300				
Gly	Ser	Arg	Arg	Phe	Ser	Arg	Asn	Ala	Cys	Val	Val	Val	Ser	Cys	Gly
305					310					315					320
Thr	Ala	Val	Thr	Val	Asp	Ala	Leu	Thr	Asp	Asp	Gly	His	Tyr	Leu	Gly
				325					330					335	
Gly	Thr	Ile	Met	Pro	Gly	Phe	His	Leu	Met	Lys	Glu	Ser	Leu	Ala	Val
			340					345						350	

Arg Thr Ala Asn Leu Asn Arg Pro Ala Gly Lys Arg Tyr Pro Phe Pro
355 360 365

Thr Thr Thr Gly Asn Ala Val Ala Ser Gly Met Met Asp Ala Val Cys
370 375 380

Gly Ser Ile Met Met Met His Gly Arg Leu Lys Glu Lys Asn Gly Ala
385 390 395 400

Gly Lys Pro Val Asp Val Ile Ile Thr Gly Gly Gly Ala Ala Lys Val
405 410 415

Ala Glu Ala Leu Pro Pro Ala Phe Leu Ala Glu Asn Thr Val Arg Val
420 425 430

Ala Asp Asn Leu Val Ile His Gly Leu Leu Asn Leu Ile Ala Ala Glu
435 440 445

Gly Gly Glu Ser Glu His Ala
450 455

<210> 239
<211> 1779
<212> DNA
<213> Neisseria gonorrhoeae

<400> 239
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caacacgtat cgcaattggc gcgtgagggc gacatgaagc cgcagcagct caacggtttt 120
tggcagcaga tgccggcgca tatacgcggg ctgttgccgc aacacgacgg ctattggcgg 180
ctggtgccc ccttggcggg ttctgatgcc gaaggtttgc gcgatctggg ggaaaggctg 240
ggttttcaga cggcattgaa gcacgagtg gcgtccagca acgacgagat actggaattg 300
gcgcggattg cgcgggacaa ggcgcacaaa accatatgcg tgaccacct gcaaagtaag 360
ggcagggggc ggcagggggc gaagtggctg caccgtttgg gcgagtgcct gatgttcagt 420
ttcggctggg cgtttgaccg gccgcagtat gagttgggtt cgctgtcgc tgttgccgca 480
cttgctgccc ggcgcgcttt ggggtgtttg ggtttggaaa cgcaaataca gtggccaaac 540
gatttggtcg tcggacgcga caaattgggc ggcattctga ttgaaacagt caggggcggc 600
ggtaaaacgg ttgcccgtgg cggtatcggc atcaatttcg tgctgcccga ggaagtggaa 660
aacgccgctt ccgtgcagtc gctgtttcag acggcatcgc ggcggggcaa tgccgatgcc 720
gccgtattgc tggaacatt gcttgccgaa ctgggcgcgg tgttggaaca atatgcccga 780
gaagggttcg cgccattttt aaatgagtat gaaacggcca accgcgacca cggcaaggcg 840
gtattgctgt tgcgcgacgg cgaaaccgtg tgcgaaggca cggttaaagg cgtggacgga 900
cgaggcgctt tgcacttgga aacggcagaa ggccgaacaga cggctgctcag cggcgaaatc 960
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ttgctgttgg aaggcgggaa cagccggctc aagtggcgt ggggtgaaaa cggcacgttc 1080
gcaaccgtgg gcagcgcgcc gtaccgcgat ttgtcgcctt tgggcgcgga gtgggcggaa 1140
aaggcggatg gaaatgtccg catcgtcggg tgcgcgctgt gcggagaatc caaaaaggca 1200
caagtgaagg aacagctcgc ccgaaaaatc gagggtgctg cgtcttcgc acaggctttg 1260
ggcatacgca accactaccg ccaccccga gaacacggtt ccgaccgttg gttcaacgcc 1320
ttgggcagcc gccgcttcag ccgcaacgcc tgcgtcgtcg tcagttgcgg cacggcggta 1380
acggttgacg cgctcaccca tgacggacat tatctcggcg gaaccatcat gcccggttc 1440
cacctgatga aagaatcgct cgccgtccga accgccaaac tcaaccgccc cgcgggcaaa 1500
cgttaccctt tcccgaccac aacgggcaac gccgtcgcaa gcggcatgat ggacgcggtt 1560
tgccgctcga taattgatg gcacggccgt ttgaaagaaa aaaacggcgc gggcaagcct 1620
gtcgatgtca tcattaccgg cggcggcgcg gcgaaagtcg ccgaagccct gccgcctgca 1680
tttttggcgg aaaataccgt gcgcgtggcg gacaacctcg tcatccacgg gctgctgaac 1740

ctgattgccg ccgaaggcgg ggaatcgga caccgttaa

1779

<210> 240

<211> 592

<212> PRT

<213> Neisseria gonorrhoeae

<400> 240

Met	Thr	Val	Leu	Lys	Pro	Ser	His	Trp	Arg	Val	Leu	Ala	Glu	Leu	Ala	
1				5				10					15			
Asp	Gly	Leu	Pro	Gln	His	Val	Ser	Gln	Leu	Ala	Arg	Glu	Ala	Asp	Met	
			20					25					30			
Lys	Pro	Gln	Gln	Leu	Asn	Gly	Phe	Trp	Gln	Gln	Met	Pro	Ala	His	Ile	
			35				40					45				
Arg	Gly	Leu	Leu	Arg	Gln	His	Asp	Gly	Tyr	Trp	Arg	Leu	Val	Arg	Pro	
	50					55					60					
Leu	Ala	Val	Phe	Asp	Ala	Glu	Gly	Leu	Arg	Asp	Leu	Gly	Glu	Arg	Ser	
65					70					75					80	
Gly	Phe	Gln	Thr	Ala	Leu	Lys	His	Glu	Cys	Ala	Ser	Ser	Asn	Asp	Glu	
				85					90					95		
Ile	Leu	Glu	Leu	Ala	Arg	Ile	Ala	Pro	Asp	Lys	Ala	His	Lys	Thr	Ile	
			100					105					110			
Cys	Val	Thr	His	Leu	Gln	Ser	Lys	Gly	Arg	Gly	Arg	Gln	Gly	Arg	Lys	
		115					120					125				
Trp	Ser	His	Arg	Leu	Gly	Glu	Cys	Leu	Met	Phe	Ser	Phe	Gly	Trp	Ala	
	130					135						140				
Phe	Asp	Arg	Pro	Gln	Tyr	Glu	Leu	Gly	Ser	Leu	Ser	Pro	Val	Ala	Ala	
145					150					155					160	
Leu	Ala	Cys	Arg	Arg	Ala	Leu	Gly	Cys	Leu	Gly	Leu	Glu	Thr	Gln	Ile	
			165					170						175		
Lys	Trp	Pro	Asn	Asp	Leu	Val	Val	Gly	Arg	Asp	Lys	Leu	Gly	Gly	Ile	
			180					185					190			
Leu	Ile	Glu	Thr	Val	Arg	Ala	Gly	Gly	Lys	Thr	Val	Ala	Val	Val	Gly	
		195					200					205				
Ile	Gly	Ile	Asn	Phe	Val	Leu	Pro	Lys	Glu	Val	Glu	Asn	Ala	Ala	Ser	
	210					215					220					
Val	Gln	Ser	Leu	Phe	Gln	Thr	Ala	Ser	Arg	Arg	Gly	Asn	Ala	Asp	Ala	
225					230					235					240	
Ala	Val	Leu	Leu	Glu	Thr	Leu	Leu	Ala	Glu	Leu	Gly	Ala	Val	Leu	Glu	
			245						250					255		

Gln	Tyr	Ala	Glu	Glu	Gly	Phe	Ala	Pro	Phe	Leu	Asn	Glu	Tyr	Glu	Thr	260	265	270
Ala	Asn	Arg	Asp	His	Gly	Lys	Ala	Val	Leu	Leu	Leu	Arg	Asp	Gly	Glu	275	280	285
Thr	Val	Cys	Glu	Gly	Thr	Val	Lys	Gly	Val	Asp	Gly	Arg	Gly	Val	Leu	290	295	300
His	Leu	Glu	Thr	Ala	Glu	Gly	Glu	Gln	Thr	Val	Val	Ser	Gly	Glu	Ile	305	310	315
Ser	Leu	Arg	Pro	Asp	Asn	Arg	Ser	Val	Ser	Val	Pro	Lys	Arg	Pro	Asp	325	330	335
Ser	Glu	Arg	Phe	Leu	Leu	Leu	Glu	Gly	Gly	Asn	Ser	Arg	Leu	Lys	Trp	340	345	350
Ala	Trp	Val	Glu	Asn	Gly	Thr	Phe	Ala	Thr	Val	Gly	Ser	Ala	Pro	Tyr	355	360	365
Arg	Asp	Leu	Ser	Pro	Leu	Gly	Ala	Glu	Trp	Ala	Glu	Lys	Ala	Asp	Gly	370	375	380
Asn	Val	Arg	Ile	Val	Gly	Cys	Ala	Val	Cys	Gly	Glu	Ser	Lys	Lys	Ala	385	390	395
Gln	Val	Lys	Glu	Gln	Leu	Ala	Arg	Lys	Ile	Glu	Trp	Leu	Pro	Ser	Ser	405	410	415
Ala	Gln	Ala	Leu	Gly	Ile	Arg	Asn	His	Tyr	Arg	His	Pro	Glu	Glu	His	420	425	430
Gly	Ser	Asp	Arg	Trp	Phe	Asn	Ala	Leu	Gly	Ser	Arg	Arg	Phe	Ser	Arg	435	440	445
Asn	Ala	Cys	Val	Val	Val	Ser	Cys	Gly	Thr	Ala	Val	Thr	Val	Asp	Ala	450	455	460
Leu	Thr	Asp	Asp	Gly	His	Tyr	Leu	Gly	Gly	Thr	Ile	Met	Pro	Gly	Phe	465	470	475
His	Leu	Met	Lys	Glu	Ser	Leu	Ala	Val	Arg	Thr	Ala	Asn	Leu	Asn	Arg	485	490	495
Pro	Ala	Gly	Lys	Arg	Tyr	Pro	Phe	Pro	Thr	Thr	Thr	Gly	Asn	Ala	Val	500	505	510
Ala	Ser	Gly	Met	Met	Asp	Ala	Val	Cys	Gly	Ser	Ile	Met	Met	Met	His	515	520	525
Gly	Arg	Leu	Lys	Glu	Lys	Asn	Gly	Ala	Gly	Lys	Pro	Val	Asp	Val	Ile	530	535	540
Ile	Thr	Gly	Gly	Gly	Ala	Ala	Lys	Val	Ala	Glu	Ala	Leu	Pro	Pro	Ala	545	550	555
																		560

Phe Leu Ala Glu Asn Thr Val Arg Val Ala Asp Asn Leu Val Ile His
565 570 575

Gly Leu Leu Asn Leu Ile Ala Ala Glu Gly Gly Glu Ser Glu His Ala
580 585 590

<210> 241
<211> 648
<212> DNA
<213> Neisseria meningitidis

<400> 241
atgttttacc aaatccttgc cctgattatc tggagcagct cgttttattgc cgccaaatat 60
gtctatggcg gcatcgatcc cgcattgatg gtcggcgtgc gcctgctaata tgccgcgctg 120
cctgcactgc ccgcctgccg ccgtcatgtc ggcaagattc cgcgtgagga atggaagccg 180
ttgctgattg tgcgttcgt caactatgtg ctgaccctgc tgcttcagtt tgtcgggttg 240
aaatacactt ccgccgccag cgcacgggtc attgtcggac tcgagccgct gctgatgggtg 300
tttgtcggac actttttctt caacgacaaa gcgcgtgcct accactggat atgcggcgcg 360
gcggcatttg ccggtgtcgc gctgctgatg gcgggcgggtg cggaagaggg cggcgaagtc 420
ggctggttcg gctgcctgct ggtgttggtg gcgggcgcgg gcttttgtgc cgctatgcgt 480
ccgacgcgaaa ggctgattgc acgcatcggc gcaccggcat tcacatctgt ttccattgcc 540
gccgcacgtg tgatgtgcct gccgttttcg cttgcttttg cgcaaagtta taccgtggac 600
tggagcgtcg ggatggtatt gtcgctgctg tatttggtt tgggggtgc 648

<210> 242
<211> 216
<212> PRT
<213> Neisseria meningitidis

<400> 242
Met Phe Tyr Gln Ile Leu Ala Leu Ile Ile Trp Ser Ser Ser Phe Ile
1 5 10 15
Ala Ala Lys Tyr Val Tyr Gly Gly Ile Asp Pro Ala Leu Met Val Gly
20 25 30
Val Arg Leu Leu Ile Ala Ala Leu Pro Ala Leu Pro Ala Cys Arg Arg
35 40 45
His Val Gly Lys Ile Pro Arg Glu Glu Trp Lys Pro Leu Leu Ile Val
50 55 60
Ser Phe Val Asn Tyr Val Leu Thr Leu Leu Leu Gln Phe Val Gly Leu
65 70 75 80
Lys Tyr Thr Ser Ala Ala Ser Ala Ser Val Ile Val Gly Leu Glu Pro
85 90 95
Leu Leu Met Val Phe Val Gly His Phe Phe Phe Asn Asp Lys Ala Arg
100 105 110
Ala Tyr His Trp Ile Cys Gly Ala Ala Ala Phe Ala Gly Val Ala Leu
115 120 125
Leu Met Ala Gly Gly Ala Glu Glu Gly Gly Glu Val Gly Trp Phe Gly
130 135 140

Cys Leu Leu Val Leu Leu Ala Gly Ala Gly Phe Cys Ala Ala Met Arg
145 150 155 160

Pro Thr Gln Arg Leu Ile Ala Arg Ile Gly Ala Pro Ala Phe Thr Ser
165 170 175

Val Ser Ile Ala Ala Ala Ser Leu Met Cys Leu Pro Phe Ser Leu Ala
180 185 190

Leu Ala Gln Ser Tyr Thr Val Asp Trp Ser Val Gly Met Val Leu Ser
195 200 205

Leu Leu Tyr Leu Gly Leu Gly Cys
210 215

<210> 243
<211> 855
<212> DNA
<213> Neisseria meningitidis

<400> 243
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gtctatggcg gcatcgatcc cgcattgatg gtcggcgtgc gcctgctaata tgccgcgctg 120
cctgcactgc ccgcctgccg ccgtcatgtc ggcaagattc cgcgtgagga atggaagccg 180
ttgctgattg tgctgctcgt caactatgtg ctgaccctgc tgcttcagtt tgctcgggtg 240
aaatacactt ccgcccgcag cgcacgcgtc attgtcggac tcgagccgct gctgatgggtg 300
tttgtcggac actttttctt caacgacaaa gcgcgtgcct accactggat atgcggcgcg 360
gcggcatttg ccggtgtcgc gctgctgatg gcgggcggtg cggaagaggg cggcgaagtc 420
ggctgggttcg gctgcctgct ggtgttggtg gcgggcggtg gcttttgtgc cgctatgcgt 480
ccgacgcaaa ggctgattgc acgcatcggc gcaccggcat tcacatctgt ttccattgcc 540
gccgcatcgt tgatgtgcct gccgttttcg cttgctttgg cgcaaagtta taccgtggac 600
tggagcgtcg ggatggtatt gtcgctgctg tatttgggtt tggggtgcgg ctggtacgcc 660
tattggctgt ggaacaaggg gatgagccgt gttcctgcca atgtttcggg actgttgatt 720
tcgctcgaac ccgtcgtcgg cgtgctgctg gcggttttga ttttgggcga acacctgtcg 780
cccgtgtccg ccttgggcgt gtttgtcgtc atcgccgcca ccttggttgc cggccggtg 840
tcgcatcaaa aataa 855

<210> 244
<211> 284
<212> PRT
<213> Neisseria meningitidis

<400> 244
Met Phe Tyr Gln Ile Leu Ala Leu Ile Ile Trp Ser Ser Ser Phe Ile
1 5 10 15
Ala Ala Lys Tyr Val Tyr Gly Gly Ile Asp Pro Ala Leu Met Val Gly
20 25 30
Val Arg Leu Leu Ile Ala Ala Leu Pro Ala Leu Pro Ala Cys Arg Arg
35 40 45
His Val Gly Lys Ile Pro Arg Glu Glu Trp Lys Pro Leu Leu Ile Val
50 55 60
Ser Phe Val Asn Tyr Val Leu Thr Leu Leu Leu Gln Phe Val Gly Leu

65	70	75	80
Lys Tyr Thr Ser Ala Ala Ser Ala Ser Val Ile Val Gly Leu Glu Pro	85	90	95
Leu Leu Met Val Phe Val Gly His Phe Phe Phe Asn Asp Lys Ala Arg	100	105	110
Ala Tyr His Trp Ile Cys Gly Ala Ala Ala Phe Ala Gly Val Ala Leu	115	120	125
Leu Met Ala Gly Gly Ala Glu Glu Gly Gly Glu Val Gly Trp Phe Gly	130	135	140
Cys Leu Leu Val Leu Leu Ala Gly Ala Gly Phe Cys Ala Ala Met Arg	145	150	160
Pro Thr Gln Arg Leu Ile Ala Arg Ile Gly Ala Pro Ala Phe Thr Ser	165	170	175
Val Ser Ile Ala Ala Ala Ser Leu Met Cys Leu Pro Phe Ser Leu Ala	180	185	190
Leu Ala Gln Ser Tyr Thr Val Asp Trp Ser Val Gly Met Val Leu Ser	195	200	205
Leu Leu Tyr Leu Gly Leu Gly Cys Gly Trp Tyr Ala Tyr Trp Leu Trp	210	215	220
Asn Lys Gly Met Ser Arg Val Pro Ala Asn Val Ser Gly Leu Leu Ile	225	230	235
Ser Leu Glu Pro Val Val Gly Val Leu Leu Ala Val Leu Ile Leu Gly	245	250	255
Glu His Leu Ser Pro Val Ser Ala Leu Gly Val Phe Val Val Ile Ala	260	265	270
Ala Thr Leu Val Ala Gly Arg Leu Ser His Gln Lys	275	280	

<210> 245
 <211> 855
 <212> DNA
 <213> Neisseria meningitidis

<400> 245	
atgttttacc aaatccttgc cctgattatc tggagcagct cgttttattgc cgccaaatat	60
gtctatggcg gcatcgatcc cgcattgatg gtcggcgtgc gcctgctgat tgctgcgctg	120
cctgcactgc ccgcctgccg ccgtcatgtc ggcaagattc cgcgtgagga atggaagccg	180
ttgctgattg tgctcgttcgt caactatgtg ctgaccctgc tacttcagtt tgcggggttg	240
aaatacactt ccgcccag cgcacgcgtc attgtcggac tcgagccact gctgatggtg	300
tttgtcggac actttttctt caacgacaaa gcgcgtgcct accactggat atgcggcgcg	360
gcggcatttg ccggtgtcgc gctgctgatg gcgggcggtg cggaagaggg cggcgaagtc	420
ggctggttcg gctgcctgct ggtgttgttg gcgggcgcgg gcttttgtgc cgctatgcgt	480
ccgacgcaaa ggctgattgc acgcatcggc gcaccggcat tcacatctgt ttccattgcc	540

gccgcatcgt	tgatgtgcct	gccgttttcg	cttgcttttg	cgcaaagtta	taccgtggac	600
tgagcgctcg	gaatggtatt	gtcgtgctg	tatttgggcg	tggggtgcag	ctggtacgcc	660
tattggctgt	ggaacaaggg	gatgagccgt	gttcctgcc	acgtttcggg	actgttgatt	720
tcgctcgaac	ccgtcgctcg	cgtgctgctg	gcggttttga	ttttgggcga	acacctgtcg	780
cccgtgtccg	tcttgggcgt	gtttgtcgtc	atcgccgcc	ccttggttgc	cggccggctg	840
tcgcatcaaa	aataa					855

<210> 246
 <211> 284
 <212> PRT
 <213> Neisseria meningitidis

<400> 246

Met	Phe	Tyr	Gln	Ile	Leu	Ala	Leu	Ile	Ile	Trp	Ser	Ser	Ser	Phe	Ile	1	5	10	15
Ala	Ala	Lys	Tyr	Val	Tyr	Gly	Gly	Ile	Asp	Pro	Ala	Leu	Met	Val	Gly	20	25	30	
Val	Arg	Leu	Leu	Ile	Ala	Ala	Leu	Pro	Ala	Leu	Pro	Ala	Cys	Arg	Arg	35	40	45	
His	Val	Gly	Lys	Ile	Pro	Arg	Glu	Glu	Trp	Lys	Pro	Leu	Leu	Ile	Val	50	55	60	
Ser	Phe	Val	Asn	Tyr	Val	Leu	Thr	Leu	Leu	Leu	Gln	Phe	Val	Gly	Leu	65	70	75	80
Lys	Tyr	Thr	Ser	Ala	Ala	Ser	Ala	Ser	Val	Ile	Val	Gly	Leu	Glu	Pro	85	90	95	
Leu	Leu	Met	Val	Phe	Val	Gly	His	Phe	Phe	Phe	Asn	Asp	Lys	Ala	Arg	100	105	110	
Ala	Tyr	His	Trp	Ile	Cys	Gly	Ala	Ala	Ala	Phe	Ala	Gly	Val	Ala	Leu	115	120	125	
Leu	Met	Ala	Gly	Gly	Ala	Glu	Glu	Gly	Gly	Glu	Val	Gly	Trp	Phe	Gly	130	135	140	
Cys	Leu	Leu	Val	Leu	Leu	Ala	Gly	Ala	Gly	Phe	Cys	Ala	Ala	Met	Arg	145	150	155	160
Pro	Thr	Gln	Arg	Leu	Ile	Ala	Arg	Ile	Gly	Ala	Pro	Ala	Phe	Thr	Ser	165	170	175	
Val	Ser	Ile	Ala	Ala	Ala	Ser	Leu	Met	Cys	Leu	Pro	Phe	Ser	Leu	Ala	180	185	190	
Leu	Ala	Gln	Ser	Tyr	Thr	Val	Asp	Trp	Ser	Val	Gly	Met	Val	Leu	Ser	195	200	205	
Leu	Leu	Tyr	Leu	Gly	Val	Gly	Cys	Ser	Trp	Tyr	Ala	Tyr	Trp	Leu	Trp	210	215	220	
Asn	Lys	Gly	Met	Ser	Arg	Val	Pro	Ala	Asn	Val	Ser	Gly	Leu	Leu	Ile				

Leu Leu Met Val Phe Val Gly His Phe Phe Phe Asn Asp Lys Ala Arg
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 Ala Tyr His Trp Ile Cys Gly Ala Ala Ala Phe Ala Gly Val Ala Leu
 115 120 125
 Leu Met Ala Gly Gly Ala Glu Glu Gly Gly Glu Val Gly Trp Phe Gly
 130 135 140
 Cys Leu Leu Val Leu Leu Ala Gly Ala Gly Phe Cys Ala Ala Met Arg
 145 150 155 160
 Pro Thr Gln Arg Leu Ile Ala Arg Ile Gly Ala Pro Ala Phe Thr Ser
 165 170 175
 Val Ser Ile Ala Ala Ala Ser Leu Met Cys Leu Pro Phe Ser Leu Ala
 180 185 190
 Leu Ala Gln Ser Tyr Thr Val Asp Trp Ser Val Gly Met Val Leu Ser
 195 200 205
 Leu Leu Tyr Leu Gly Leu Gly Cys Gly Trp Tyr Ala Tyr Trp Leu Trp
 210 215 220
 Asn Lys Gly Met Ser Arg Val Pro Ala Asn Ala Ser Gly Leu Leu Ile
 225 230 235 240
 Ser Leu Glu Pro Val Val Gly Val Leu Leu Ala Val Leu Ile Leu Gly
 245 250 255
 Glu His Leu Ser Pro Val Ser Ala Leu Gly Val Phe Val Val Ile Ala
 260 265 270
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 Asn Ala Val
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 <213> Neisseria meningitidis

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 tacgccggca gcgggttttgc ccagcttgcc ctgtacaayk scgcaagcgg caaaatcgaa 540
 aaaagcatca acccgcacaa gctcgatcag ccgtttccag gtaaggcgcg ttgggaaaaa 600
 atccaacggg cgggttcggt cagggtttg gaaagcatag gcggcgtatt gtacgcgcag 660

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gagttgagtt	acagcaaaaa	aggtttgcag	acctttttcc	tggcaaccct	gctgattgcc	840
tcgctgctgt	cgatttttct	tgcactggtc	atggcactgt	atttcgcccg	ccgtttcgtc	900
gaaccgcgtcc	tatcgcttgc	cgagggggcg	aaggcgggtg	cgcaaggcga	tttcagccag	960
acgcgccccg	tgttgcgcaa	cgacgagttc	ggacgcttga	ccargttgtt	caaccacatg	1020
accgagcagc	tttccatcgc	caaagatgca	gacgagcgca	accgccggcg	cgaggaagcc	1080
gccaggcatt	atcttgaatg	cgtgttggag	gggctgacca	cgggcggtgt	ggtgtttgac	1140
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			20					25					30				
Phe	Trp	Trp	Ile	Val	Ala	Phe	Ser	Ala	Met	Leu	Leu	Leu	Val	Leu	Ser		
		35					40					45					
Ala	Val	Leu	Ala	Arg	Tyr	Val	Ile	Leu	Leu	Leu	Lys	Asp	Arg	Arg	Asp		
	50					55					60						
Gly	Val	Phe	Gly	Ser	Xaa	Xaa	Ala	Lys	Xaa	Pro	Xaa	Xaa	Xaa	Met	Phe		
65				70					75						80		
Thr	Leu	Val	Ala	Xaa	Leu	Pro	Gly	Val	Phe	Leu	Phe	Gly	Phe	Pro	Ala		
			85					90						95			
Gln	Phe	Ile	Asn	Gly	Thr	Ile	Asn	Ser	Trp	Phe	Gly	Asn	Asp	Thr	His		
		100					105						110				
Glu	Ala	Leu	Glu	Arg	Ser	Leu	Asn	Leu	Ser	Lys	Ser	Ala	Leu	Asn	Leu		
	115						120					125					
Ala	Ala	Asp	Asn	Ala	Leu	Gly	Asn	Ala	Val	Pro	Val	Gln	Ile	Asp	Leu		
	130					135					140						
Ile	Gly	Ala	Ala	Ser	Leu	Pro	Gly	Asp	Met	Gly	Arg	Val	Leu	Glu	His		
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Tyr	Ala	Gly	Ser	Gly	Phe	Ala	Gln	Leu	Ala	Leu	Tyr	Asn	Xaa	Ala	Ser		
			165					170						175			
Gly	Lys	Ile	Glu	Lys	Ser	Ile	Asn	Pro	His	Lys	Leu	Asp	Gln	Pro	Phe		
		180					185						190				
Pro	Gly	Lys	Ala	Arg	Trp	Glu	Lys	Ile	Gln	Arg	Ala	Gly	Ser	Val	Arg		
	195						200					205					
Asp	Leu	Glu	Ser	Ile	Gly	Gly	Val	Leu	Tyr	Ala	Gln	Gly	Trp	Leu	Ser		
	210					215					220						
Ala	Gly	Thr	His	Xaa	Gly	Arg	Asp	Tyr	Ala	Leu	Phe	Phe	Arg	Gln	Pro		
225					230					235					240		
Val	Pro	Lys	Gly	Val	Ala	Glu	Asp	Ala	Val	Leu	Ile	Glu	Lys	Ala	Arg		
			245						250					255			
Ala	Lys	Tyr	Ala	Glu	Leu	Ser	Tyr	Ser	Lys	Lys	Gly	Leu	Gln	Thr	Phe		
			260					265					270				

Phe Leu Ala Thr Leu Leu Ile Ala Ser Leu Leu Ser Ile Phe Leu Ala
 275 280 285

Leu Val Met Ala Leu Tyr Phe Ala Arg Arg Phe Val Glu Pro Val Leu
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Ser Leu Ala Glu Gly Ala Lys Ala Val Ala Gln Gly Asp Phe Ser Gln
 305 310 315 320

Thr Arg Pro Val Leu Arg Asn Asp Glu Phe Gly Arg Leu Thr Xaa Leu
 325 330 335

Phe Asn His Met Thr Glu Gln Leu Ser Ile Ala Lys Asp Ala Asp Glu
 340 345 350

Arg Asn Arg Arg Arg Glu Glu Ala Ala Arg His Tyr Leu Glu Cys Val
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Leu Lys Thr Phe Asn Lys Ala Ala Gly Thr
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<211> 2121

<212> DNA

<213> Neisseria meningitidis

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 <213> Neisseria meningitidis

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 35 40 45
 Ala Val Leu Ala Arg Tyr Val Ile Leu Leu Leu Lys Asp Arg Arg Asp
 50 55 60
 Gly Val Phe Gly Ser Gln Ile Ala Lys Arg Leu Ser Gly Met Phe Thr
 65 70 75 80
 Leu Val Ala Val Leu Pro Gly Val Phe Leu Phe Gly Val Ser Ala Gln
 85 90 95
 Phe Ile Asn Gly Thr Ile Asn Ser Trp Phe Gly Asn Asp Thr His Glu
 100 105 110
 Ala Leu Glu Arg Ser Leu Asn Leu Ser Lys Ser Ala Leu Asn Leu Ala
 115 120 125
 Ala Asp Asn Ala Leu Gly Asn Ala Val Pro Val Gln Ile Asp Leu Ile
 130 135 140
 Gly Ala Ala Ser Leu Pro Gly Asp Met Gly Arg Val Leu Glu His Tyr
 145 150 155 160
 Ala Gly Ser Gly Phe Ala Gln Leu Ala Leu Tyr Asn Ala Ala Ser Gly
 165 170 175
 Lys Ile Glu Lys Ser Ile Asn Pro His Lys Leu Asp Gln Pro Phe Pro
 180 185 190
 Gly Lys Ala Arg Trp Glu Lys Ile Gln Arg Ala Gly Ser Val Arg Asp
 195 200 205

Leu Glu Ser Ile Gly Gly Val Leu Tyr Ala Gln Gly Trp Leu Ser Ala
 210 215 220
 Gly Thr His Asn Gly Arg Asp Tyr Ala Leu Phe Phe Arg Gln Pro Val
 225 230 235 240
 Pro Lys Gly Val Ala Glu Asp Ala Val Leu Ile Glu Lys Ala Arg Ala
 245 250 255
 Lys Tyr Ala Glu Leu Ser Tyr Ser Lys Lys Gly Leu Gln Thr Phe Phe
 260 265 270
 Leu Ala Thr Leu Leu Ile Ala Ser Leu Leu Ser Ile Phe Leu Ala Leu
 275 280 285
 Val Met Ala Leu Tyr Phe Ala Arg Arg Phe Val Glu Pro Val Leu Ser
 290 295 300
 Leu Ala Glu Gly Ala Lys Ala Val Ala Gln Gly Asp Phe Ser Gln Thr
 305 310 315 320
 Arg Pro Val Leu Arg Asn Asp Glu Phe Gly Arg Leu Thr Lys Leu Phe
 325 330 335
 Asn His Met Thr Glu Gln Leu Ser Ile Ala Lys Glu Ala Asp Glu Arg
 340 345 350
 Asn Arg Arg Arg Glu Glu Ala Ala Arg His Tyr Leu Glu Cys Val Leu
 355 360 365
 Glu Gly Leu Thr Thr Gly Val Val Val Phe Asp Glu Gln Gly Cys Leu
 370 375 380
 Lys Thr Phe Asn Lys Ala Ala Glu Gln Ile Leu Gly Met Pro Leu Thr
 385 390 395 400
 Pro Leu Trp Gly Ser Ser Arg His Gly Trp His Gly Val Ser Ala Gln
 405 410 415
 Gln Ser Leu Leu Ala Glu Val Phe Ala Ala Ile Gly Ala Ala Ala Gly
 420 425 430
 Thr Asp Lys Pro Val His Val Lys Tyr Ala Ala Pro Asp Asp Ala Lys
 435 440 445
 Ile Leu Leu Gly Lys Ala Thr Val Leu Pro Glu Asp Asn Gly Asn Gly
 450 455 460
 Val Val Met Val Ile Asp Asp Ile Thr Val Leu Ile His Ala Gln Lys
 465 470 475 480
 Glu Ala Ala Trp Gly Glu Val Ala Lys Arg Leu Ala His Glu Ile Arg
 485 490 495
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Leu Gly Gly Lys Leu Asp Glu Gln Asp Ala Gln Ile Leu Thr Arg Ser
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 Thr Asp Thr Ile Val Lys Gln Val Ala Ala Leu Lys Glu Met Val Glu
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 Ala Phe Arg Asn Tyr Ala Arg Ser Pro Ser Leu Lys Leu Glu Asn Gln
 545 550 555 560
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 Pro Cys Arg Phe Ala Ala Glu Leu Ala Gly Glu Pro Leu Thr Val Ala
 580 585 590
 Ala Asp Thr Thr Ala Met Arg Gln Val Leu His Asn Ile Phe Lys Asn
 595 600 605
 Ala Ala Glu Ala Ala Glu Glu Ala Asp Val Pro Glu Val Arg Val Lys
 610 615 620
 Ser Glu Thr Gly Gln Asp Gly Arg Ile Val Leu Thr Val Cys Asp Asn
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 Val Thr Asp Lys Pro Ala Gly Thr Gly Leu Gly Leu Pro Val Val Lys
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 Lys Ile Ile Glu Glu His Gly Gly Arg Ile Ser Leu Ser Asn Gln Asp
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 <213> Neisseria meningitidis

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 <222> (462)..(462)
 <223> Xaa= any amino acid

<220>
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 <223> Xaa= any amino acid

<220>
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 <223> Xaa= any amino acid

<220>
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<222> (555)..(555)
<223> Xaa= any amino acid

<220>
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<223> Xaa= any amino acid

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<223> Xaa= any amino acid

<220>
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<222> (693)..(693)
<223> Xaa= any amino acid

<400> 254
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Tyr Gly Leu Thr Ala Ala Thr Gly Ser Thr Ser Ser Leu Ala Asp Tyr
20 25 30
Phe Trp Trp Ile Val Ala Phe Ser Ala Met Leu Leu Leu Val Leu Ser
35 40 45
Ala Val Leu Ala Arg Tyr Val Ile Leu Leu Leu Lys Asp Arg Arg Asp
50 55 60
Gly Val Phe Gly Ser Gln Ile Ala Lys Arg Leu Ser Gly Met Phe Thr
65 70 75 80
Leu Val Ala Val Leu Pro Gly Val Phe Leu Phe Gly Val Ser Ala Gln
85 90 95
Phe Ile Asn Gly Thr Ile Asn Ser Trp Phe Gly Asn Asp Thr His Glu
100 105 110
Ala Leu Glu Arg Ser Leu Asn Leu Ser Lys Ser Ala Leu Asn Leu Ala
115 120 125
Ala Asp Asn Ala Leu Gly Asn Ala Ile Pro Val Gln Ile Asp Xaa Ile
130 135 140
Gly Ala Ala Ser Leu Pro Xaa Asp Met Gly Arg Val Leu Glu His Tyr
145 150 155 160
Ala Gly Ser Gly Phe Ala Gln Leu Ala Leu Tyr Asn Ala Ala Ser Gly
165 170 175
Lys Ile Glu Lys Ser Ile Asn Pro His Lys Leu Asp Gln Pro Phe Pro
180 185 190
Gly Lys Ala Arg Trp Glu Lys Ile Gln Gln Ala Gly Ser Val Arg Asp

195	200	205
Xaa Glu Ser Ile Gly Gly Val Leu Tyr Ala Xaa Gly Trp Leu Ser Ala 210 215 220		
Xaa Thr His Asn Gly Arg Asp Tyr Ala Leu Phe Phe Arg Gln Pro Val 225 230 235 240		
Pro Lys Gly Val Ala Glu Asp Ala Val Leu Ile Glu Lys Ala Arg Ala 245 250 255		
Xaa Xaa Xaa Xaa Leu Ser Tyr Ser Lys Lys Gly Leu Gln Thr Phe Phe 260 265 270		
Leu Ala Thr Leu Leu Ile Ala Ser Leu Leu Ser Ile Phe Leu Ala Leu 275 280 285		
Val Met Ala Leu Tyr Phe Ala Arg Arg Phe Val Glu Pro Val Leu Ser 290 295 300		
Leu Ala Glu Gly Ala Lys Ala Val Ala Gln Gly Asp Phe Ser Gln Thr 305 310 315 320		
Arg Pro Val Leu Arg Asn Asp Glu Phe Gly Arg Leu Thr Lys Leu Phe 325 330 335		
Asn His Met Thr Glu Gln Leu Ser Ile Ala Lys Glu Ala Asp Glu Arg 340 345 350		
Asn Arg Arg Arg Glu Glu Ala Ala Arg His Tyr Leu Glu Cys Val Leu 355 360 365		
Glu Gly Leu Thr Thr Gly Val Val Val Phe Asp Glu Gln Gly Cys Leu 370 375 380		
Lys Thr Phe Asn Lys Ala Ala Glu Gln Ile Leu Gly Met Pro Leu Thr 385 390 395 400		
Pro Leu Trp Gly Ser Ser Arg His Gly Trp His Gly Val Ser Ala Gln 405 410 415		
Gln Ser Leu Leu Ala Glu Val Phe Ala Ala Ile Gly Ala Ala Ala Gly 420 425 430		
Thr Asp Lys Pro Val His Val Lys Tyr Ala Ala Pro Asp Asp Ala Lys 435 440 445		
Ile Leu Leu Gly Lys Ala Thr Val Leu Pro Glu Asp Asn Xaa Asn Gly 450 455 460		
Val Val Met Val Ile Asp Asp Ile Thr Val Leu Ile His Ala Gln Lys 465 470 475 480		
Glu Ala Ala Trp Gly Glu Val Ala Lys Arg Leu Ala His Glu Ile Arg 485 490 495		

Asn Pro Leu Thr Pro Ile Gln Leu Ser Ala Glu Arg Leu Ala Trp Lys
 500 505 510
 Leu Gly Gly Lys Leu Asp Glu Xaa Asp Ala Gln Ile Leu Thr Arg Ser
 515 520 525
 Thr Asp Thr Ile Ile Lys Gln Val Ala Ala Leu Lys Glu Met Val Glu
 530 535 540
 Ala Phe Arg Asn Tyr Xaa Arg Ser Pro Ser Xaa Gln Leu Glu Asn Gln
 545 550 555 560
 Asp Leu Asn Ala Leu Ile Gly Asp Val Leu Ala Leu Tyr Glu Ala Gly
 565 570 575
 Pro Cys Arg Phe Ala Ala Glu Leu Ala Gly Glu Pro Leu Met Met Ala
 580 585 590
 Ala Asp Thr Thr Ala Met Arg Gln Val Leu His Asn Ile Phe Lys Asn
 595 600 605
 Ala Ala Glu Ala Ala Glu Glu Ala Asp Val Pro Glu Val Arg Val Lys
 610 615 620
 Ser Glu Ala Gly Gln Asp Gly Arg Ile Val Leu Thr Val Cys Asp Asn
 625 630 635 640
 Gly Lys Gly Phe Gly Arg Glu Met Leu His Asn Ala Phe Glu Pro Tyr
 645 650 655
 Val Thr Asp Lys Pro Ala Gly Thr Gly Leu Xaa Leu Pro Val Val Lys
 660 665 670
 Lys Ile Ile Glu Glu His Gly Gly Xaa Ile Ser Leu Ser Asn Gln Asp
 675 680 685
 Ala Gly Gly Ala Xaa Val Arg Ile Ile Leu Pro Lys Thr Val Glu Thr
 690 695 700

Tyr Ala
 705

<210> 255
 <211> 8
 <212> DNA
 <213> *Neisseria gonorrhoeae*

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 255
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<210> 256

<211> 400
<212> PRT
<213> Neisseria gonorrhoeae

<400> 256

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Tyr	Gly	Leu	Thr	Ala	Ala	Thr	Gly	Ser	Thr	Ser	Ser	Leu	Ala	Asp	Tyr
			20					25					30		
Phe	Trp	Trp	Ile	Val	Ser	Phe	Ser	Ala	Met	Leu	Leu	Leu	Val	Leu	Ser
		35					40					45			
Ala	Val	Leu	Ala	Arg	Tyr	Val	Ile	Leu	Leu	Leu	Lys	Asp	Arg	Arg	Asn
	50					55					60				
Gly	Val	Phe	Gly	Ser	Gln	Ile	Ala	Lys	Arg	Leu	Ser	Gly	Met	Phe	Thr
65					70					75					80
Leu	Val	Ala	Val	Leu	Pro	Gly	Leu	Phe	Leu	Phe	Gly	Ile	Ser	Ala	Gln
				85				90						95	
Phe	Ile	Asn	Gly	Thr	Ile	Asn	Ser	Trp	Phe	Gly	Asn	Asp	Thr	His	Glu
			100					105					110		
Ala	Leu	Glu	Arg	Ser	Leu	Asn	Leu	Ser	Lys	Ser	Ala	Leu	Asp	Leu	Ala
		115					120						125		
Ala	Asp	Asn	Ala	Val	Ser	Asn	Ala	Val	Pro	Val	Gln	Ile	Asp	Leu	Ile
	130					135					140				
Gly	Thr	Ala	Ser	Leu	Ser	Gly	Asn	Met	Gly	Ser	Val	Leu	Glu	His	Tyr
145					150					155					160
Ala	Gly	Ser	Gly	Phe	Ala	Gln	Leu	Ala	Leu	Tyr	Asn	Ala	Ala	Ser	Gly
				165					170					175	
Lys	Ile	Glu	Lys	Ser	Ile	Asn	Pro	His	Gln	Phe	Asp	Gln	Pro	Leu	Pro
			180					185					190		
Asp	Lys	Glu	His	Trp	Glu	Gln	Ile	Gln	Gln	Thr	Gly	Ser	Val	Arg	Ser
		195					200					205			
Leu	Glu	Ser	Ile	Gly	Gly	Val	Leu	Tyr	Ala	Gln	Gly	Trp	Leu	Ser	Ala
	210					215					220				
Gly	Thr	His	Asn	Gly	Arg	Asp	Tyr	Ala	Leu	Phe	Phe	Arg	Gln	Pro	Ile
225					230					235					240
Pro	Glu	Asn	Val	Ala	Gln	Asp	Ala	Val	Leu	Ile	Glu	Lys	Ala	Arg	Ala
				245					250					255	
Lys	Tyr	Ala	Glu	Leu	Ser	Tyr	Ser	Lys	Lys	Gly	Leu	Gln	Thr	Phe	Phe
			260					265					270		

Leu Val Thr Leu Leu Ile Ala Ser Leu Leu Ser Ile Phe Leu Ala Leu
275 280 285

Val Met Ala Leu Tyr Phe Ala Arg Arg Phe Val Glu Pro Ile Leu Ser
290 295 300

Leu Ala Glu Gly Ala Lys Ala Val Ala Gln Gly Asp Phe Ser Gln Thr
305 310 315 320

Arg Pro Val Leu Arg Asn Asp Glu Phe Gly Arg Leu Thr Lys Leu Phe
325 330 335

Asn His Met Thr Glu Gln Leu Ser Ile Ala Lys Glu Ala Asp Glu Arg
340 345 350

Asn Arg Arg Arg Glu Glu Ala Ala Arg His Tyr Leu Glu Cys Val Leu
355 360 365

Asp Gly Leu Thr Thr Gly Val Val Val Ser Tyr Pro Leu Ser Cys Cys
370 375 380

Arg Thr Ala Val Phe Ser Thr Cys His Ser Ser Pro Leu Ser Tyr Phe
385 390 395 400

<210> 257

<211> 2121

<212> DNA

<213> Neisseria gonorrhoeae

<400> 257

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gcaatgctgc	tgctggtggt	gtccgccgtt	ttggcacgtt	atgtcatatt	gctggtgaaa	180
gacaggcgca	acggcggtgt	cggttcgcag	attgccaaac	gcctttccgg	gatgttcacg	240
ctggtcgccg	tactgcccg	cttgttcctg	ttcggcattt	ccgcgcagtt	tatcaacggc	300
acgattaatt	cgtggttcgg	caacgacacc	cacgaagccc	tcgaacgcag	ccttaatttg	360
agcaagtcgg	cactggattt	ggcggcagac	aatgccgtca	gcaacgccgt	tcccgtacag	420
atagacctca	tcggcaccgc	ctccctgtcg	ggcaatatgg	gcagtgtgct	ggaacactac	480
gccggcagcg	gttttgccca	gcttgccctg	tacaatgccg	caagcgggaa	aatcgaaaaa	540
agcatcaatc	cgcaccaatt	cgaccagccg	cttcccgaca	aagaacattg	ggaacagatt	600
cagcagaccg	gttcggttcg	gagtttggaa	agcataggcg	gcgtattgta	cgcgcaggga	660
tggttgctcg	caggtacgca	caacgggcgc	gattacgcgc	tggtcttccg	ccagccgatt	720
cccgaaaatg	tggcacagga	tgccgttctg	attgaaaagg	cgcgggcgaa	atatgccgaa	780
ttgagttaca	gcaaaaaagg	tttgacagacc	ttttttctgg	taaccctgct	gattgcctcg	840
ctgctgtcga	tttttcttgc	gctggtaatg	gcactgtatt	ttgcccgcgg	tttcgtcgaa	900
cccattctgt	cgcttgccga	gggcgcaaag	gcggtggcgc	agggtgattt	cagccagacg	960
cgccccgtat	tgcgcaacga	cgagttcggg	cgtttgacca	agctgttcaa	ccatatgacc	1020
gagcagcttt	ccatcgccaa	agaagcagac	gaacgcaacc	gccggcgcgga	ggaagccgcc	1080
cgtcactacc	tcgagtgcgt	gttggtatgg	ttgactaccg	gtgtggtggg	gtttgacgaa	1140
aaaggccggt	tgaaaacctt	caacaaggcg	gcggaacaga	ttttggggat	gccgctcgcc	1200
cccctgtggg	gcagcagccg	gcacgggttg	cacggcggtt	cggcgcgagca	gtccctgctt	1260
gccgaagtgt	ttgccgccat	cgggtgcggcg	gcaggtacgg	acaaaccggg	ccaggtggaa	1320
tatgccgcgc	cggacgatgc	caaaatcctg	ctgggcaagg	cgacgggtatt	gccccgaagac	1380
aacggcaacg	gcgtggtgat	ggtgattgac	gacatcaccg	tgctgatacg	cgcgcaaaaa	1440
gaagccgcgt	ggggtgaagt	ggcgaagcgg	ctggcacacg	aaatccgcaa	tccgctcacg	1500
cccatccagc	tttccgcgca	acggctggcg	tggaaattgg	gcgggaagct	ggacgatcag	1560

gacgcgcaaa	tcctgacgcg	ttcgaccgcg	accatcatca	aacaggtggc	ggcggttaaaa	1620
gaaatggtcg	aggcattccg	caattacgcg	cgcgcccctt	cgctcaaact	ggaaaaatcag	1680
gatttgaacg	ccttaatcgg	cgatgttttg	gccctgtaag	aagccggccc	gtgccgggttt	1740
gagcggaac	ttgccggcga	accgctgatg	atggcggcgg	atacgaccgc	catgcggcag	1800
gtgctgcaca	atattttcaa	aaatgccgcc	gaagcggcgg	aagaagccga	tatgcccga	1860
gtcagggtaa	aatcggaac	ggggcaggac	ggacggattg	tcctgacggt	ttgcgacaac	1920
ggcaagggat	tcggcaagga	aatgctgcac	aatgctttcg	agccgtatgt	gacggataag	1980
ccggcgggaa	cgggactggg	tctgcctgta	gtgaaaaaaaa	tcattggaga	acacggcggc	2040
cgcacagcc	tgagcaatca	ggatgcgggt	ggggcgtgtg	tcagaatcat	cttgccaaaa	2100
acggtagaaa	cttatgcgta	g				2121

<210> 258
 <211> 706
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 258
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 Tyr Gly Leu Thr Ala Ala Thr Gly Ser Thr Ser Ser Leu Ala Asp Tyr
 20 25 30
 Phe Trp Trp Ile Val Ser Phe Ser Ala Met Leu Leu Leu Val Leu Ser
 35 40 45
 Ala Val Leu Ala Arg Tyr Val Ile Leu Leu Leu Lys Asp Arg Arg Asn
 50 55 60
 Gly Val Phe Gly Ser Gln Ile Ala Lys Arg Leu Ser Gly Met Phe Thr
 65 70 75 80
 Leu Val Ala Val Leu Pro Gly Leu Phe Leu Phe Gly Ile Ser Ala Gln
 85 90 95
 Phe Ile Asn Gly Thr Ile Asn Ser Trp Phe Gly Asn Asp Thr His Glu
 100 105 110
 Ala Leu Glu Arg Ser Leu Asn Leu Ser Lys Ser Ala Leu Asp Leu Ala
 115 120 125
 Ala Asp Asn Ala Val Ser Asn Ala Val Pro Val Gln Ile Asp Leu Ile
 130 135 140
 Gly Thr Ala Ser Leu Ser Gly Asn Met Gly Ser Val Leu Glu His Tyr
 145 150 155 160
 Ala Gly Ser Gly Phe Ala Gln Leu Ala Leu Tyr Asn Ala Ala Ser Gly
 165 170 175
 Lys Ile Glu Lys Ser Ile Asn Pro His Gln Phe Asp Gln Pro Leu Pro
 180 185 190
 Asp Lys Glu His Trp Glu Gln Ile Gln Gln Thr Gly Ser Val Arg Ser
 195 200 205

Leu Glu Ser Ile Gly Gly Val Leu Tyr Ala Gln Gly Trp Leu Ser Ala
 210 215 220

Gly Thr His Asn Gly Arg Asp Tyr Ala Leu Phe Phe Arg Gln Pro Ile
 225 230 235 240

Pro Glu Asn Val Ala Gln Asp Ala Val Leu Ile Glu Lys Ala Arg Ala
 245 250 255

Lys Tyr Ala Glu Leu Ser Tyr Ser Lys Lys Gly Leu Gln Thr Phe Phe
 260 265 270

Leu Val Thr Leu Leu Ile Ala Ser Leu Leu Ser Ile Phe Leu Ala Leu
 275 280 285

Val Met Ala Leu Tyr Phe Ala Arg Arg Phe Val Glu Pro Ile Leu Ser
 290 295 300

Leu Ala Glu Gly Ala Lys Ala Val Ala Gln Gly Asp Phe Ser Gln Thr
 305 310 315 320

Arg Pro Val Leu Arg Asn Asp Glu Phe Gly Arg Leu Thr Lys Leu Phe
 325 330 335

Asn His Met Thr Glu Gln Leu Ser Ile Ala Lys Glu Ala Asp Glu Arg
 340 345 350

Asn Arg Arg Arg Glu Glu Ala Ala Arg His Tyr Leu Glu Cys Val Leu
 355 360 365

Asp Gly Leu Thr Thr Gly Val Val Val Phe Asp Glu Lys Gly Arg Leu
 370 375 380

Lys Thr Phe Asn Lys Ala Ala Glu Gln Ile Leu Gly Met Pro Leu Ala
 385 390 395 400

Pro Leu Trp Gly Ser Ser Arg His Gly Trp His Gly Val Ser Ala Gln
 405 410 415

Gln Ser Leu Leu Ala Glu Val Phe Ala Ala Ile Gly Ala Ala Ala Gly
 420 425 430

Thr Asp Lys Pro Val Gln Val Glu Tyr Ala Ala Pro Asp Asp Ala Lys
 435 440 445

Ile Leu Leu Gly Lys Ala Thr Val Leu Pro Glu Asp Asn Gly Asn Gly
 450 455 460

Val Val Met Val Ile Asp Asp Ile Thr Val Leu Ile Arg Ala Gln Lys
 465 470 475 480

Glu Ala Ala Trp Gly Glu Val Ala Lys Arg Leu Ala His Glu Ile Arg
 485 490 495

Asn Pro Leu Thr Pro Ile Gln Leu Ser Ala Glu Arg Leu Ala Trp Lys
 500 505 510

Leu Gly Gly Lys Leu Asp Asp Gln Asp Ala Gln Ile Leu Thr Arg Ser
 515 520 525
 Thr Asp Thr Ile Ile Lys Gln Val Ala Ala Leu Lys Glu Met Val Glu
 530 535 540
 Ala Phe Arg Asn Tyr Ala Arg Ala Pro Ser Leu Lys Leu Glu Asn Gln
 545 550 555 560
 Asp Leu Asn Ala Leu Ile Gly Asp Val Leu Ala Leu Tyr Glu Ala Gly
 565 570 575
 Pro Cys Arg Phe Glu Ala Glu Leu Ala Gly Glu Pro Leu Met Met Ala
 580 585 590
 Ala Asp Thr Thr Ala Met Arg Gln Val Leu His Asn Ile Phe Lys Asn
 595 600 605
 Ala Ala Glu Ala Ala Glu Glu Ala Asp Met Pro Glu Val Arg Val Lys
 610 615 620
 Ser Glu Thr Gly Gln Asp Gly Arg Ile Val Leu Thr Val Cys Asp Asn
 625 630 635 640
 Gly Lys Gly Phe Gly Lys Glu Met Leu His Asn Ala Phe Glu Pro Tyr
 645 650 655
 Val Thr Asp Lys Pro Ala Gly Thr Gly Leu Gly Leu Pro Val Val Lys
 660 665 670
 Lys Ile Ile Gly Glu His Gly Gly Arg Ile Ser Leu Ser Asn Gln Asp
 675 680 685
 Ala Gly Gly Ala Cys Val Arg Ile Ile Leu Pro Lys Thr Val Glu Thr
 690 695 700

Tyr Ala
 705

<210> 259
 <211> 465
 <212> DNA
 <213> Neisseria meningitidis

<400> 259
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 atcctcatca tcgccgccag caactatctg gtgcagttcc ctttccaaat tttcggcatc 120
 cacaccactt ggggcgcatt ttcctttccc ttcattctcc ttgccaccga cctgaccgtc 180
 cgcattttcg gttctcactt ggcacggcgg attatctttt gggatgatgt ccccgccctt 240
 ttgcttttct acgtcttttc cgttttgttc cacaacggca gttggacagg cttgggcgcg 300
 ctgtccgaat tcaacacctt tgtcggacgc atcgccctag ccagctttgc cgcctacgcg 360
 atcggacaaa tccttgatat ttttgtattc aacaaattac gccgtctgaa agcgtggtgg 420
 attgcaccga acgcatcaac cgtcatcggg cagcgttgg atacg 465

<210> 260
 <211> 155

<212> PRT

<213> Neisseria meningitidis

<400> 260

Met Tyr Ala Phe Thr Ala Ala Gln Gln Gln Lys Ala Leu Phe Arg Leu
1 5 10 15
Val Leu Phe His Ile Leu Ile Ile Ala Ala Ser Asn Tyr Leu Val Gln
20 25 30
Phe Pro Phe Gln Ile Phe Gly Ile His Thr Thr Trp Gly Ala Phe Ser
35 40 45
Phe Pro Phe Ile Phe Leu Ala Thr Asp Leu Thr Val Arg Ile Phe Gly
50 55 60
Ser His Leu Ala Arg Arg Ile Ile Phe Trp Val Met Phe Pro Ala Leu
65 70 75 80
Leu Leu Ser Tyr Val Phe Ser Val Leu Phe His Asn Gly Ser Trp Thr
85 90 95
Gly Leu Gly Ala Leu Ser Glu Phe Asn Thr Phe Val Gly Arg Ile Ala
100 105 110
Leu Ala Ser Phe Ala Ala Tyr Ala Ile Gly Gln Ile Leu Asp Ile Phe
115 120 125
Val Phe Asn Lys Leu Arg Arg Leu Lys Ala Trp Trp Ile Ala Pro Asn
130 135 140
Ala Ser Thr Val Ile Gly His Ala Leu Asp Thr
145 150 155

<210> 261

<211> 687

<212> DNA

<213> Neisseria meningitidis

<400> 261

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cacaccactt	ggggcgcat	ttcctttccc	ttcatcttcc	ttgccaccga	cctgaccgtc	180
cgcattttcg	gttctcactt	ggcacggcgg	attatctttt	gggtgatggt	ccccgccctt	240
ttgctttcct	acgtcttttc	cgttttgttc	cacaacggca	gttggacagg	cttggggcgcg	300
ctgtccgaat	tcaacacctt	tgtcggacgc	atcgcccttag	ccagctttgc	cgcctacgcg	360
atcggacaaa	tccttgatat	ttttgtattc	aacaaattac	gccgtctgaa	agcgtgggtgg	420
attgcaccga	ccgcatcaac	cgatcatcggc	aacgccttgg	atacgtgggt	atttttcgcc	480
gttgccttct	acgcaagcag	cgatggattt	atggcgggcaa	actggcaggg	catcgttttt	540
gtcgattacc	tggtcaaact	taccgtctgc	accctcttct	tcctgcccgc	ctacggcggtg	600
atactgaatc	tgctgacgaa	aaaactgaca	accctgcaaa	ccaaacaggc	gcaagaccgc	660
cccgcgccct	cgctgcaaaa	tccgtaa				687

<210> 262

<211> 228

<212> PRT

<213> Neisseria meningitidis

<400> 262

Met Tyr Ala Phe Thr Ala Ala Gln Gln Gln Lys Ala Leu Phe Arg Leu
1 5 10 15

Val Leu Phe His Ile Leu Ile Ile Ala Ala Ser Asn Tyr Leu Val Gln
20 25 30

Phe Pro Phe Gln Ile Phe Gly Ile His Thr Thr Trp Gly Ala Phe Ser
35 40 45

Phe Pro Phe Ile Phe Leu Ala Thr Asp Leu Thr Val Arg Ile Phe Gly
50 55 60

Ser His Leu Ala Arg Arg Ile Ile Phe Trp Val Met Phe Pro Ala Leu
65 70 75 80

Leu Leu Ser Tyr Val Phe Ser Val Leu Phe His Asn Gly Ser Trp Thr
85 90 95

Gly Leu Gly Ala Leu Ser Glu Phe Asn Thr Phe Val Gly Arg Ile Ala
100 105 110

Leu Ala Ser Phe Ala Ala Tyr Ala Ile Gly Gln Ile Leu Asp Ile Phe
115 120 125

Val Phe Asn Lys Leu Arg Arg Leu Lys Ala Trp Trp Ile Ala Pro Thr
130 135 140

Ala Ser Thr Val Ile Gly Asn Ala Leu Asp Thr Leu Val Phe Phe Ala
145 150 155 160

Val Ala Phe Tyr Ala Ser Ser Asp Gly Phe Met Ala Ala Asn Trp Gln
165 170 175

Gly Ile Ala Phe Val Asp Tyr Leu Phe Lys Leu Thr Val Cys Thr Leu
180 185 190

Phe Phe Leu Pro Ala Tyr Gly Val Ile Leu Asn Leu Leu Thr Lys Lys
195 200 205

Leu Thr Thr Leu Gln Thr Lys Gln Ala Gln Asp Arg Pro Ala Pro Ser
210 215 220

Leu Gln Asn Pro
225

<210> 263

<211> 687

<212> DNA

<213> Neisseria meningitidis

<400> 263

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atcctcatca tcgccgccag caactatctg gtgcagttcc ccttccaaat ttccggcatc 120

cacaccactt	ggggcgcggt	ttcctttccc	ttcatcttcc	tcgccaccga	cctgaccgtc	180
cgcattttcg	gttcgcactt	ggcacggcgg	attatctttt	gggtcatggt	ccccgccctt	240
ttgcttttct	acgtcttttc	cgttttgttc	cacaacggca	gttggacggg	cttggggcgcg	300
ctgtccgaat	tcaacacctt	tgtcggacgc	atcgcgctgg	caagttttgc	cgcctacgcg	360
ctcggacaaa	tccttgatat	ttttgtgttc	aacaaattac	gccgtctgaa	agcgtggtgg	420
gttgccccga	ctgcatcaac	cgtcacgcgc	aacgccttag	atacgttggg	atttttcgcc	480
gttgcccttct	acgcaagcag	cgatggattt	atggcgggcaa	actggcaggg	catcgctttt	540
gtcgattacc	tgttcaaaact	caccgtctgc	ggtctgtttt	tcctgcccgc	ctacggcggtg	600
attctgaatc	tgctgacgaa	aaaactgacg	accctgcaaa	ccaaacaggg	gcaagaccgc	660
cccgcgccct	cgctgcaaaa	tccgtaa				687

<210> 264
 <211> 228
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 264
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 Phe Pro Phe Gln Ile Ser Gly Ile His Thr Thr Trp Gly Ala Phe Ser
 35 40 45
 Phe Pro Phe Ile Phe Leu Ala Thr Asp Leu Thr Val Arg Ile Phe Gly
 50 55 60
 Ser His Leu Ala Arg Arg Ile Ile Phe Trp Val Met Phe Pro Ala Leu
 65 70 75 80
 Leu Leu Ser Tyr Val Phe Ser Val Leu Phe His Asn Gly Ser Trp Thr
 85 90 95
 Gly Leu Gly Ala Leu Ser Glu Phe Asn Thr Phe Val Gly Arg Ile Ala
 100 105 110
 Leu Ala Ser Phe Ala Ala Tyr Ala Leu Gly Gln Ile Leu Asp Ile Phe
 115 120 125
 Val Phe Asn Lys Leu Arg Arg Leu Lys Ala Trp Trp Val Ala Pro Thr
 130 135 140
 Ala Ser Thr Val Ile Gly Asn Ala Leu Asp Thr Leu Val Phe Phe Ala
 145 150 155 160
 Val Ala Phe Tyr Ala Ser Ser Asp Gly Phe Met Ala Ala Asn Trp Gln
 165 170 175
 Gly Ile Ala Phe Val Asp Tyr Leu Phe Lys Leu Thr Val Cys Gly Leu
 180 185 190
 Phe Phe Leu Pro Ala Tyr Gly Val Ile Leu Asn Leu Leu Thr Lys Lys
 195 200 205

Leu Thr Thr Leu Gln Thr Lys Gln Ala Gln Asp Arg Pro Ala Pro Ser
 210 215 220

Leu Gln Asn Pro
 225

<210> 265
 <211> 687
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 265
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 atcctcatca tcgccgccag caactatctg gtgcagttcc ccttccggat ttccggcatc 120
 cacaccactt ggggcgcggt ttcctttccc ttcattctcc tcgccaccga cctgaccgtc 180
 cgcattttcg gttcgcactt ggcgcggcgg attatctttt gggatgatgt ccccgccctt 240
 ttgctttcat acgtcttttc cgttttggtc cacaacggca gttggacggg cttgggcgcg 300
 ctgtcccaat tcaacacctt tgtcggacgc atcgcgctgg caagttttgc cgcctacgcg 360
 ctcggacaaa tccttgatat ttctgtattc gacaaattac gccgtctgaa agcgtggtgg 420
 attgccccgg ccgcacaaac cgtcatcggc aatgcactgg acacgttagt attttttgcc 480
 gttgcctttt acgcaagcag cgatgaattt atggcggcaa actggcaggg catcgctttt 540
 gtcgattacc tgttcaaact taccgtctgc accctcttct tcctgcccgc ctacggcgtg 600
 atactgaatc tgctgacgaa aaaactgacg gccctgcaaa ccaaacaggc gcaagaccgc 660
 cccgtgcctt cgctgcaaaa tccgtaa 687

<210> 266
 <211> 228
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 266
 Met Tyr Ala Leu Thr Ala Ala Gln Gln Gln Lys Ala Leu Phe Arg Leu
 1 5 10 15
 Val Leu Phe His Ile Leu Ile Ile Ala Ala Ser Asn Tyr Leu Val Gln
 20 25 30
 Phe Pro Phe Arg Ile Phe Gly Ile His Thr Thr Trp Gly Ala Phe Ser
 35 40 45
 Phe Pro Phe Ile Phe Leu Ala Thr Asp Leu Thr Val Arg Ile Phe Gly
 50 55 60
 Ser His Leu Ala Arg Arg Ile Ile Phe Trp Val Met Phe Pro Ala Leu
 65 70 75 80
 Ser Leu Ser Tyr Val Phe Ser Val Leu Phe His Asn Gly Ser Trp Thr
 85 90 95
 Gly Leu Gly Ala Pro Ser Gln Phe Asn Thr Phe Val Gly Arg Ile Ala
 100 105 110
 Leu Ala Ser Phe Ala Ala Tyr Ala Leu Gly Gln Ile Leu Asp Ile Phe
 115 120 125
 Val Phe Asp Lys Leu Arg Arg Leu Lys Ala Trp Trp Ile Ala Pro Ala

130

135

140

Ala Ser Thr Val Ile Gly Asn Ala Leu Asp Thr Leu Val Phe Phe Ala
145 150 155 160

Val Ala Phe Tyr Ala Ser Ser Asp Glu Phe Met Ala Ala Asn Trp Gln
165 170 175

Gly Ile Ala Phe Val Asp Tyr Leu Phe Lys Leu Thr Val Cys Thr Leu
180 185 190

Phe Phe Leu Pro Ala Tyr Gly Val Ile Leu Asn Leu Leu Thr Lys Lys
195 200 205

Leu Thr Ala Leu Gln Thr Lys Gln Ala Gln Asp Arg Pro Val Pro Ser
210 215 220

Leu Gln Asn Pro
225

<210> 267

<211> 519

<212> DNA

<213> *Neisseria meningitidis*

<400> 267

atgggtcataa	aatatacaaaa	tttgaatttt	gcgaaattgt	cgataattgc	aattttgatg	60
atgtattcgt	ttgaagcgaa	tgcaaaygca	gtmwraatat	ctgaaactgt	ttcagttgat	120
accggacaag	gtgcgaaaat	tcataagttt	gtacctaaaa	atagtaaaac	ttattcatct	180
gatttaataa	aaacggtaga	tttaacacac	ayycctacgg	gcgcaaaagc	ccgaatcaac	240
gccaaaataa	ccgccagcgt	atccccgcgc	ggcgatttgg	cggggggtcgg	caaacttgcc	300
cgcttagggc	cgaaattcag	cacaagggcg	gttccctatg	tcggaacagc	ccttttagcc	360
cacgacgtat	acgaaacttt	caaagaagac	atacaggcac	gaggctacca	atacgacccc	420
gaaaccgaca	aatttgtaaa	aggctacgaa	tatagtaatt	gccttttggt	cgaagacaaa	480
agacgtatta	atagaaccta	tggctgctac	ggcgttgat			519

<210> 268

<211> 173

<212> PRT

<213> *Neisseria meningitidis*

<220>

<221> misc_feature

<222> (32)..(32)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (71)..(71)

<223> Xaa= any amino acid

<400> 268

Met Val Ile Lys Tyr Thr Asn Leu Asn Phe Ala Lys Leu Ser Ile Ile
1 5 10 15

Ala Ile Leu Met Met Tyr Ser Phe Glu Ala Asn Ala Asn Ala Val Xaa

Ile Ser Glu Thr Val Ser Val Asp Thr Gly Gln Gly Ala Lys Ile His
35 40 45

Lys Phe Val Pro Lys Asn Ser Lys Thr Tyr Ser Ser Asp Leu Ile Lys
50 55 60

Thr Val Asp Leu Thr His Ile Pro Thr Gly Ala Lys Ala Arg Ile Asn
65 70 75 80

Ala Lys Ile Thr Ala Ser Val Ser Arg Ala Gly Val Leu Ala Gly Val
85 90 95

Gly Lys Leu Ala Arg Leu Gly Ala Lys Phe Ser Thr Arg Ala Val Pro
100 105 110

Tyr Val Gly Thr Ala Leu Leu Ala His Asp Val Tyr Glu Thr Phe Lys
115 120 125

Glu Asp Ile Gln Ala Arg Gly Tyr Gln Tyr Asp Pro Glu Thr Asp Lys
130 135 140

Phe Ala Lys Val Ser Gly
145 150

<210> 271
<211> 453
<212> DNA
<213> Neisseria meningitidis

<400> 271
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atgtattcgt ttgaagcgaa tgcaaattgca gtaaaaaatat ctgaaactgt ttcagttgat 120
accggacaag gtgcgaaaaat tcataagtgt gtacctaaaa atagtaaaac ttattcatct 180
gatttaataa aaacggtaga tttaacacac atccctacgg gcgcaaaaagc ccgaatcaac 240
gccaaaataa ccgccagcgt atcccgcgcc ggcgtattgg cggggggtcgg caaacttgcc 300
cgcttaggcg cgaaaattcag cacaagggcg gttccctatg tcggaacagc ccttttagcc 360
cacgacgtat acgaaacttt caaagaagac atacaggcac gaggctacca atacgacccc 420
gaaaccgaca aatttgcaaa ggtctcaggc taa 453

<210> 272
<211> 150
<212> PRT
<213> Neisseria meningitidis

<400> 272
Met Val Ile Lys Tyr Thr Asn Leu Asn Phe Ala Lys Leu Ser Ile Ile
1 5 10 15

Ala Ile Leu Met Met Tyr Ser Phe Glu Ala Asn Ala Asn Ala Val Lys
20 25 30

Ile Ser Glu Thr Val Ser Val Asp Thr Gly Gln Gly Ala Lys Ile His
35 40 45

Lys Phe Val Pro Lys Asn Ser Lys Thr Tyr Ser Ser Asp Leu Ile Lys
50 55 60

Thr Val Asp Leu Thr His Ile Pro Thr Gly Ala Lys Ala Arg Ile Asn
65 70 75 80

Ala Lys Ile Thr Ala Ser Val Ser Arg Ala Gly Val Leu Ala Gly Val
85 90 95

Gly Lys Leu Ala Arg Leu Gly Ala Lys Phe Ser Thr Arg Ala Val Pro
100 105 110

Tyr Val Gly Thr Ala Leu Leu Ala His Asp Val Tyr Glu Thr Phe Lys
115 120 125

Glu Asp Ile Gln Ala Arg Gly Tyr Gln Tyr Asp Pro Glu Thr Asp Lys
130 135 140

Phe Ala Lys Val Ser Gly
145 150

<210> 273
<211> 8
<212> DNA
<213> Neisseria gonorrhoeae

<220>
<221> misc_feature
<222> (1)..(8)
<223> N= Unknown

<400> 273
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8

<210> 274
<211> 526
<212> PRT
<213> Neisseria gonorrhoeae

<400> 274
Met Val Thr Lys His Thr Asn Leu Asn Phe Ala Lys Leu Ser Ile Ile
1 5 10 15

Ala Ile Leu Met Met Tyr Ser Phe Glu Ala Asn Ala Asn Ala Val Lys
20 25 30

Ile Ser Glu Thr Leu Ser Val Asp Thr Gly Gln Gly Ala Lys Val His
35 40 45

Lys Phe Val Pro Lys Ser Ser Asn Ile Tyr Ser Ser Asp Leu Thr Lys
50 55 60

Ala Val Asp Leu Thr His Ile Pro Thr Gly Ala Lys Ala Arg Ile Asn
65 70 75 80

Ala Lys Ile Thr Ala Ser Val Ser Arg Ala Gly Val Leu Ser Gly Val
85 90 95

Gly Lys Leu Val Arg Gln Gly Ala Lys Phe Gly Thr Arg Ala Val Pro

100					105					110					
Tyr	Val	Gly	Thr	Ala	Leu	Leu	Ala	His	Asp	Val	Tyr	Glu	Thr	Phe	Lys
		115					120					125			
Glu	Asp	Ile	Gln	Ala	Arg	Gly	Cys	Arg	Tyr	Asp	Pro	Glu	Thr	Asp	Lys
	130					135					140				
Phe	Val	Lys	Gly	Tyr	Glu	Tyr	Ala	Asn	Cys	Leu	Trp	Tyr	Glu	Asp	Glu
145					150					155					160
Arg	Arg	Ile	Asn	Arg	Thr	Tyr	Gly	Cys	Tyr	Gly	Val	Asp	Ser	Ser	Ile
			165						170					175	
Met	Arg	Leu	Met	Pro	Asp	Arg	Ser	Arg	Phe	Pro	Glu	Val	Lys	Gln	Leu
		180						185					190		
Met	Glu	Ser	Gln	Met	Tyr	Arg	Leu	Ala	Arg	Pro	Phe	Trp	Asn	Trp	Arg
	195						200					205			
Lys	Glu	Glu	Leu	Asn	Lys	Leu	Ser	Ser	Leu	Asp	Trp	Asn	Asn	Phe	Val
	210					215					220				
Leu	Asn	Arg	Cys	Thr	Phe	Asp	Trp	Asn	Gly	Gly	Gly	Cys	Ala	Val	Asn
225					230					235					240
Lys	Gly	Asp	Asp	Phe	Arg	Ala	Gly	Ala	Ser	Phe	Ser	Leu	Gly	Arg	Asn
				245					250					255	
Pro	Lys	Tyr	Lys	Glu	Glu	Met	Asp	Ala	Lys	Lys	Pro	Glu	Glu	Ile	Leu
			260					265						270	
Ser	Leu	Lys	Val	Asp	Ala	Asp	Pro	Asp	Lys	Tyr	Ile	Glu	Ala	Thr	Gly
		275					280					285			
Tyr	Pro	Gly	Tyr	Ser	Glu	Lys	Val	Glu	Val	Ala	Pro	Gly	Thr	Lys	Val
	290					295					300				
Asn	Met	Gly	Pro	Val	Thr	Asp	Arg	Asn	Gly	Asn	Pro	Val	Gln	Val	Ala
305					310					315					320
Ala	Thr	Phe	Gly	Arg	Asp	Ala	Gln	Gly	Asn	Thr	Thr	Ala	Asp	Val	Gln
				325					330					335	
Val	Ile	Pro	Arg	Pro	Asp	Leu	Thr	Pro	Ala	Ser	Ala	Glu	Ala	Pro	His
			340					345					350		
Ala	Gln	Pro	Leu	Pro	Glu	Val	Ser	Pro	Ala	Glu	Asn	Pro	Ala	Asn	Asn
	355						360					365			
Pro	Asp	Pro	Asp	Glu	Asn	Pro	Gly	Thr	Arg	Pro	Asn	Pro	Glu	Pro	Asp
	370					375					380				
Pro	Asp	Leu	Asn	Pro	Asp	Ala	Asn	Pro	Asp	Thr	Asp	Gly	Gln	Pro	Gly
385					390					395					400

Thr Ser Pro Asp Ser Pro Ala Val Pro Asp Arg Pro Asn Gly Arg His
 405 410 415

Arg Lys Glu Arg Lys Glu Gly Glu Asp Gly Gly Leu Ser Cys Asp Tyr
 420 425 430

Phe Pro Glu Ile Leu Ala Cys Gln Glu Met Gly Lys Pro Ser Asp Arg
 435 440 445

Met Phe His Asp Ile Ser Ile Pro Gln Val Thr Asp Asp Lys Thr Trp
 450 455 460

Ser Ser His Asn Phe Leu Pro Ser Asn Gly Val Cys Pro Gln Pro Lys
 465 470 475 480

Thr Phe His Val Phe Gly Arg Gln Tyr Arg Ala Ser Tyr Glu Pro Leu
 485 490 495

Cys Val Phe Ala Glu Lys Ile Arg Phe Ala Val Leu Leu Ala Phe Ile
 500 505 510

Ile Met Ser Ala Phe Val Val Phe Gly Ser Leu Gly Gly Glu
 515 520 525

<210> 275
 <211> 435
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 275
 atggtcacaa aacatacaaaa tttgaatttt gcgaaattgt cgataattgc aattttgatg 60
 atgtattcgt ttgaagcgaa tgcaaagca gtaaaaatat ctgaaactct ttcggttgat 120
 accggacaag gcgcgaaagt tcataagttc gttcctaaat caagtaatat ttattcatct 180
 gatttaacaa aagcggtaga tttacgcat atccccacgg gcgcaaaagc ccgaatcaac 240
 gccaaaataa ccgccagcgt atccccgcgc gccgtattgt cgggggtcgg caaacttgtc 300
 cgccaaggcg cgaaattcgg cacaagggcg gttccctatg tcggaacagc ccttttagcc 360
 cagcagtat acgaaacttt caaagaagac atacaggcac gaggctgccg atacgatccc 420
 gaaaccgaca aattt 435

<210> 276
 <211> 145
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 276
 Met Val Thr Lys His Thr Asn Leu Asn Phe Ala Lys Leu Ser Ile Ile
 1 5 10 15
 Ala Ile Leu Met Met Tyr Ser Phe Glu Ala Asn Ala Asn Ala Val Lys
 20 25 30
 Ile Ser Glu Thr Leu Ser Val Asp Thr Gly Gln Gly Ala Lys Val His
 35 40 45
 Lys Phe Val Pro Lys Ser Ser Asn Ile Tyr Ser Ser Asp Leu Thr Lys
 50 55 60

Ala Val Asp Leu Thr His Ile Pro Thr Gly Ala Lys Ala Arg Ile Asn
65 70 75 80

Ala Lys Ile Thr Ala Ser Val Ser Arg Ala Gly Val Leu Ser Gly Val
85 90 95

Gly Lys Leu Val Arg Gln Gly Ala Lys Phe Gly Thr Arg Ala Val Pro
100 105 110

Tyr Val Gly Thr Ala Leu Leu Ala His Asp Val Tyr Glu Thr Phe Lys
115 120 125

Glu Asp Ile Gln Ala Arg Gly Cys Arg Tyr Asp Pro Glu Thr Asp Lys
130 135 140

Phe
145

<210> 277
<211> 229
<212> DNA
<213> Neisseria meningitidis

<400> 277
atgagatttt tccgtatcgg ttttttggtg ctgctgtttt tggagattat gtcgattgtg 60
tggtttgccg attggtcggg cggcggtcgg acgttggttt tgatggcggc aggttttgcc 120
gccggcgtgc tgatgctcag gcaaaccggg gctgaccggt cttttattgg cgggcgcggc 180
aatgagaagc ggcgggaagg tatccgttta tcagatgttg tggcctatc 229

<210> 278
<211> 76
<212> PRT
<213> Neisseria meningitidis

<400> 278
Met Arg Phe Phe Gly Ile Gly Phe Leu Val Leu Leu Phe Leu Glu Ile
1 5 10 15

Met Ser Ile Val Trp Val Ala Asp Trp Leu Gly Gly Gly Trp Thr Leu
20 25 30

Phe Leu Met Ala Ala Gly Phe Ala Ala Gly Val Leu Met Leu Arg Gln
35 40 45

Thr Gly Leu Thr Gly Leu Leu Leu Ala Gly Ala Ala Met Arg Ser Gly
50 55 60

Gly Lys Val Ser Val Tyr Gln Met Leu Trp Pro Ile
65 70 75

<210> 279
<211> 486
<212> DNA
<213> Neisseria meningitidis

<400> 279

atgagatttt	tcggtatcgg	ttttttggtg	ctgctgtttt	tggagattat	gtcgtattgtg	60
tgggttgccg	attggctggg	cggcggctgg	acgttgtttt	tgatggcggc	aggttttgcc	120
gccggcggtc	tgatgctcag	gcatacgggg	ctgtccggtc	ttttattggc	gggcgcggca	180
atgagaagcg	gcgggagggt	atccgtttat	cagatgttgt	ggcctatccg	ttatacgggtg	240
gcggctgtgt	gtctgatgag	tccgggattc	gtatcctcgg	tgttggcggg	attgctgctg	300
ctgccgttta	agggaggggc	agtgttgcag	gcaggagggtg	cggaaaattt	tttcaacatg	360
aaccaatcgg	gcagaaaaga	gggcttttcc	cgcgatgacg	atattatcga	gggagaatat	420
acggttgaag	agccttacgg	cggcaatcgt	tcccgaacg	ccatcgaaca	caaaaaagac	480
gaataa						486

<210> 280
 <211> 161
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 280
 Met Arg Phe Phe Gly Ile Gly Phe Leu Val Leu Leu Phe Leu Glu Ile
 1 5 10 15
 Met Ser Ile Val Trp Val Ala Asp Trp Leu Gly Gly Gly Trp Thr Leu
 20 25 30
 Phe Leu Met Ala Ala Gly Phe Ala Ala Gly Val Leu Met Leu Arg His
 35 40 45
 Thr Gly Leu Ser Gly Leu Leu Leu Ala Gly Ala Ala Met Arg Ser Gly
 50 55 60
 Gly Arg Val Ser Val Tyr Gln Met Leu Trp Pro Ile Arg Tyr Thr Val
 65 70 75 80
 Ala Ala Val Cys Leu Met Ser Pro Gly Phe Val Ser Ser Val Leu Ala
 85 90 95
 Val Leu Leu Leu Leu Pro Phe Lys Gly Gly Ala Val Leu Gln Ala Gly
 100 105 110
 Gly Ala Glu Asn Phe Phe Asn Met Asn Gln Ser Gly Arg Lys Glu Gly
 115 120 125
 Phe Ser Arg Asp Asp Asp Ile Ile Glu Gly Glu Tyr Thr Val Glu Glu
 130 135 140
 Pro Tyr Gly Gly Asn Arg Ser Arg Asn Ala Ile Glu His Lys Lys Asp
 145 150 155 160
 Glu

<210> 281
 <211> 486
 <212> DNA
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature

<222> (213)..(213)
<223> N= Unknown

<220>
<221> misc_feature
<222> (224)..(224)
<223> N= Unknown

<220>
<221> misc_feature
<222> (254)..(254)
<223> N= Unknown

<220>
<221> misc_feature
<222> (284)..(284)
<223> N= Unknown

<220>
<221> misc_feature
<222> (298)..(298)
<223> N= Unknown

<220>
<221> misc_feature
<222> (303)..(303)
<223> N= Unknown

<220>
<221> misc_feature
<222> (366)..(366)
<223> N= Unknown

<220>
<221> misc_feature
<222> (381)..(381)
<223> N= Unknown

<220>
<221> misc_feature
<222> (385)..(385)
<223> N= Unknown

<220>
<221> misc_feature
<222> (432)..(432)
<223> N= Unknown

<220>
<221> misc_feature
<222> (446)..(446)
<223> N= Unknown

<220>
<221> misc_feature
<222> (463)..(463)

<223> N= Unknown

<220>

<221> misc_feature

<222> (465)..(465)

<223> N= Unknown

<400> 281

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tgggttgccg	attggttggg	cggcggttgg	acgctgtttc	taatggcggc	aacctttgcc	120
gccggcgtgg	tgatgctcag	gcatacgggg	ctgtccggtc	ttttattggc	gggcgcggca	180
atgagaagcg	gcgggagggg	atccgtttat	canatgttgt	ggcntatccg	ttatacggtg	240
gcggcggtgt	gtcngatgag	tccgggattc	gtatcctcgg	tgtnggcggg	attgctgntg	300
ctnccgttta	agggaggtgc	agtgttgcag	gcaggaggtg	cggaaaattt	tttcaacatg	360
aaccantcgg	gcagaaaaga	nggcntttcc	cgcgatgacg	atattatcga	gggggaatat	420
acggttgaag	anccttacgg	cggcantcgt	ttccgaaacg	ccntngaaca	caaaaaagac	480
gaataa						486

<210> 282

<211> 161

<212> PRT

<213> Neisseria meningitidis

<220>

<221> misc_feature

<222> (71)..(71)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (75)..(75)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (85)..(85)

<223> Xaa= any amino acid

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<221> misc_feature

<222> (95)..(95)

<223> Xaa= any amino acid

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<222> (100)..(100)

<223> Xaa= any amino acid

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<222> (122)..(122)

<223> Xaa= any amino acid

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<222> (127)..(127)

<223> Xaa= any amino acid

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<221> misc_feature

<222> (129)..(129)

<223> Xaa= any amino acid

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<222> (144)..(144)

<223> Xaa= any amino acid

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<222> (149)..(149)

<223> Xaa= any amino acid

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<221> misc_feature

<222> (155)..(155)

<223> Xaa= any amino acid

<400> 282

Met Arg Phe Phe Gly Ile Gly Phe Leu Val Leu Leu Phe Leu Glu Ile
1 5 10 15

Met Ser Ile Val Trp Val Ala Asp Trp Leu Gly Gly Gly Trp Thr Leu
20 25 30

Phe Leu Met Ala Ala Thr Phe Ala Ala Gly Val Val Met Leu Arg His
35 40 45

Thr Gly Leu Ser Gly Leu Leu Leu Ala Gly Ala Ala Met Arg Ser Gly
50 55 60

Gly Arg Val Ser Val Tyr Xaa Met Leu Trp Xaa Ile Arg Tyr Thr Val
65 70 75 80

Ala Ala Val Cys Xaa Met Ser Pro Gly Phe Val Ser Ser Val Xaa Ala
85 90 95

Val Leu Leu Xaa Leu Pro Phe Lys Gly Gly Ala Val Leu Gln Ala Gly
100 105 110

Gly Ala Glu Asn Phe Phe Asn Met Asn Xaa Ser Gly Arg Lys Xaa Gly
115 120 125

Xaa Ser Arg Asp Asp Asp Ile Ile Glu Gly Glu Tyr Thr Val Glu Xaa
130 135 140

Pro Tyr Gly Gly Xaa Arg Phe Arg Asn Ala Xaa Glu His Lys Lys Asp
145 150 155 160

Glu

<210> 283
 <211> 486
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 283
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 tgggttgccg attggctggg cggcgggttg acgctgtttc taatggcggc aacctttgcc 120
 gccggtgtgc tgatgctcag gcatacgggg ctgtccggtc ttttattggc tggcgcggcg 180
 gtaaaaagta gtgggaaggt atctgtttat cagatgttgt ggcctatccg ttatacggtg 240
 gcggcgggtg gtctgatgag tccgggattc gtatcctccg tgttggcggg attgctgctg 300
 ctgccgttta agggaggggc agtgttgcag gcaggagggt cgaaaaattt tttcaacatg 360
 aaccaatcgg gcagaaaaga gggatttttc cacgatgacg atattatcga gggagaatat 420
 acggttgaaa aacctgacgg cggcaatcgt tcccgaacg ccatcgaaca cgaaaaagac 480
 gaataa 486

<210> 284
 <211> 161
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 284
 Met Arg Phe Phe Gly Ile Gly Phe Leu Val Leu Leu Phe Leu Glu Ile
 1 5 10 15
 Met Ser Ile Val Trp Val Ala Asp Trp Leu Gly Gly Gly Trp Thr Leu
 20 25 30
 Phe Leu Met Ala Ala Thr Phe Ala Ala Gly Val Leu Met Leu Arg His
 35 40 45
 Thr Gly Leu Ser Gly Leu Leu Leu Ala Gly Ala Ala Val Lys Ser Ser
 50 55 60
 Gly Lys Val Ser Val Tyr Gln Met Leu Trp Pro Ile Arg Tyr Thr Val
 65 70 75 80
 Ala Ala Val Cys Leu Met Ser Pro Gly Phe Val Ser Ser Val Leu Ala
 85 90 95
 Val Leu Leu Leu Leu Pro Phe Lys Gly Gly Ala Val Leu Gln Ala Gly
 100 105 110
 Gly Ala Glu Asn Phe Phe Asn Met Asn Gln Ser Gly Arg Lys Glu Gly
 115 120 125
 Phe Phe His Asp Asp Asp Ile Ile Glu Gly Glu Tyr Thr Val Glu Lys
 130 135 140
 Pro Asp Gly Gly Asn Arg Ser Arg Asn Ala Ile Glu His Glu Lys Asp
 145 150 155 160
 Glu

<210> 285

<211> 862
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 285
 atgtttgttt ttcagacggc attcttatgt ttcagaaaca tttgcagaaa gcctccgaca 60
 gcgtcgtcgg agggacatta tacgtggttg ccacgcccac cggcaatttg gcggacatta 120
 ccctgcgcgc tttggcggtg ttgcaaaagg cggccgaaga cacgcgcgtt accgcacagc 180
 ttttgagcgc gtacggcatt cagggcaaac tcgtcagtgt gcgcgaacac aacgaacggc 240
 agatggcgga caagattgtc ggctatcttt cagacggcat gggtgtggca caggtttccg 300
 atgcgggtac gccggccgtg tgcgacccgg gcgcgaaact cggccgcccgc gtgcgtgagg 360
 ccgggtttta agtcgttccc gtcgtgggcg caacgcggtg atggcggcct tgagcgtggc 420
 cgggtgtgaa ggatccgatt tttatttcaa cggttttgta ccgccgaaat cgggagaacg 480
 caggaaactg tttgccaaat ggggtgcgggc ggcgtttctt atcgtcatgt ttgaaacgcc 540
 gcaccgcacg ggtgcagcgc ttgccgatat ggcggaactg ttccccgaac gccgattaat 600
 gctggcgcgc gaaattacga aaacgtttga aacgttctta agcggcacgg ttgggggaaat 660
 tcagacggca ttgtctgccc acggcgacca atcgcgcggc gagatggtgt tgggtgcttta 720
 tccggcgcgag gatgaaaaac acgaaggctt gtccgagtcg gcgcaaaaca tcatgaaaat 780
 cctcacagcc gagctgccga ccaaacaggg ggccggagctt gctgccaaaa tcacgggcca 840
 gggaagaaaa gctttgtacg at 862

<210> 286
 <211> 288
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
 <221> misc_feature
 <222> (9)..(9)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (132)..(132)
 <223> Xaa= any amino acid

<400> 286
 Met Phe Val Phe Gln Thr Ala Phe Xaa Met Phe Gln Lys His Leu Gln
 1 5 10 15
 Lys Ala Ser Asp Ser Val Val Gly Gly Thr Leu Tyr Val Val Ala Thr
 20 25 30
 Pro Ile Gly Asn Leu Ala Asp Ile Thr Leu Arg Ala Leu Ala Val Leu
 35 40 45
 Gln Lys Ala Ala Glu Asp Thr Arg Val Thr Ala Gln Leu Leu Ser Ala
 50 55 60
 Tyr Gly Ile Gln Gly Lys Leu Val Ser Val Arg Glu His Asn Glu Arg
 65 70 75 80
 Gln Met Ala Asp Lys Ile Val Gly Tyr Leu Ser Asp Gly Met Val Val
 85 90 95
 Ala Gln Val Ser Asp Ala Gly Thr Pro Ala Val Cys Asp Pro Gly Ala

100	105	110
Lys Leu Ala Arg Arg Val Arg Glu Ala Gly Phe Lys Val Val Pro Val 115 120 125		
Val Gly Ala Xaa Ala Val Met Ala Ala Leu Ser Val Ala Gly Val Glu 130 135 140		
Gly Ser Asp Phe Tyr Phe Asn Gly Phe Val Pro Lys Ser Gly Glu 145 150 155 160		
Arg Arg Lys Leu Phe Ala Lys Trp Val Arg Ala Ala Phe Pro Ile Val 165 170 175		
Met Phe Glu Thr Pro His Arg Ile Gly Ala Ala Leu Ala Asp Met Ala 180 185 190		
Glu Leu Phe Pro Glu Arg Arg Leu Met Leu Ala Arg Glu Ile Thr Lys 195 200 205		
Thr Phe Glu Thr Phe Leu Ser Gly Thr Val Gly Glu Ile Gln Thr Ala 210 215 220		
Leu Ser Ala Asp Gly Asp Gln Ser Arg Gly Glu Met Val Leu Val Leu 225 230 235 240		
Tyr Pro Ala Gln Asp Glu Lys His Glu Gly Leu Ser Glu Ser Ala Gln 245 250 255		
Asn Ile Met Lys Ile Leu Thr Ala Glu Leu Pro Thr Lys Gln Ala Ala 260 265 270		
Glu Leu Ala Ala Lys Ile Thr Gly Glu Gly Lys Lys Ala Leu Tyr Asp 275 280 285		

<210> 287
 <211> 876
 <212> DNA
 <213> Neisseria meningitidis

<400> 287					
atgtttcaga	aacatttgca	gaaagcctcc	gacagcgctcg	tcggaggggac	attatacgtg 60
gttgccacgc	ccatcgga	tttgccggac	attaccctgc	gcgctttggc	ggtattgcaa 120
aaggcggaca	tcattctgtgc	cgaagacacg	cgcgttaccg	cacagctttt	gagcgcgtac 180
ggcattcagg	gcaaactcgt	cagtgtgcgc	gaacacaacg	aacggcagat	ggcggacaag 240
attgtcggct	atctttcaga	cggcatgggt	gtggcacagg	tttccgatgc	gggtacgccg 300
gccgtgtgcg	acccggggcg	gaaactcgcc	cgccgcgtgc	gtgaggccgg	gtttaaagtc 360
gttcccgtcg	tgggcgcaag	cgcggtgatg	gcggctttga	gcgtggccgg	tgtggaagga 420
tccgattttt	atttcaacgg	ttttgtaccg	ccgaaatcgg	gagaacgcag	gaaactgttt 480
gccaaatggg	tgccggcggc	gtttcctatc	gtcatgtttg	aaacgccgca	ccgcatcggt 540
gcgacgcttg	ccgatatggc	ggaactgttc	cccgaacgcc	gattaatgct	ggcgcgcgaa 600
attacgaaaa	cgtttgaaac	gttcttaagc	ggcacgggtg	gggaaattca	gacggcattg 660
tctgcccagc	gcaaccaatc	gcgcggcgag	atggtgttgg	tgctttatcc	ggcgcaggat 720
gaaaaaacacg	aaggcttgct	cgagtcgcgc	caaaacatca	tgaaaatcct	cacagccgag 780
ctgccgacca	aacaggcggc	ggagcttgct	gccaaaatca	cgggcgaggg	aaagaaagct 840
ttgtacgatc	tggctctgtc	ttggaaaaac	aaatag		876

<210> 288
 <211> 291
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 288

Met	Phe	Gln	Lys	His	Leu	Gln	Lys	Ala	Ser	Asp	Ser	Val	Val	Gly	Gly	1	5	10	15
Thr	Leu	Tyr	Val	Val	Ala	Thr	Pro	Ile	Gly	Asn	Leu	Ala	Asp	Ile	Thr	20	25	30	
Leu	Arg	Ala	Leu	Ala	Val	Leu	Gln	Lys	Ala	Asp	Ile	Ile	Cys	Ala	Glu	35	40	45	
Asp	Thr	Arg	Val	Thr	Ala	Gln	Leu	Leu	Ser	Ala	Tyr	Gly	Ile	Gln	Gly	50	55	60	
Lys	Leu	Val	Ser	Val	Arg	Glu	His	Asn	Glu	Arg	Gln	Met	Ala	Asp	Lys	65	70	75	80
Ile	Val	Gly	Tyr	Leu	Ser	Asp	Gly	Met	Val	Val	Ala	Gln	Val	Ser	Asp	85	90	95	
Ala	Gly	Thr	Pro	Ala	Val	Cys	Asp	Pro	Gly	Ala	Lys	Leu	Ala	Arg	Arg	100	105	110	
Val	Arg	Glu	Ala	Gly	Phe	Lys	Val	Val	Pro	Val	Val	Gly	Ala	Ser	Ala	115	120	125	
Val	Met	Ala	Ala	Leu	Ser	Val	Ala	Gly	Val	Glu	Gly	Ser	Asp	Phe	Tyr	130	135	140	
Phe	Asn	Gly	Phe	Val	Pro	Lys	Ser	Gly	Glu	Arg	Arg	Lys	Leu	Phe	145	150	155	160	
Ala	Lys	Trp	Val	Arg	Ala	Ala	Phe	Pro	Ile	Val	Met	Phe	Glu	Thr	Pro	165	170	175	
His	Arg	Ile	Gly	Ala	Thr	Leu	Ala	Asp	Met	Ala	Glu	Leu	Phe	Pro	Glu	180	185	190	
Arg	Arg	Leu	Met	Leu	Ala	Arg	Glu	Ile	Thr	Lys	Thr	Phe	Glu	Thr	Phe	195	200	205	
Leu	Ser	Gly	Thr	Val	Gly	Glu	Ile	Gln	Thr	Ala	Leu	Ser	Ala	Asp	Gly	210	215	220	
Asn	Gln	Ser	Arg	Gly	Glu	Met	Val	Leu	Val	Leu	Tyr	Pro	Ala	Gln	Asp	225	230	235	240
Glu	Lys	His	Glu	Gly	Leu	Ser	Glu	Ser	Ala	Gln	Asn	Ile	Met	Lys	Ile	245	250	255	
Leu	Thr	Ala	Glu	Leu	Pro	Thr	Lys	Gln	Ala	Ala	Glu	Leu	Ala	Ala	Lys	260	265	270	

Ile Thr Gly Glu Gly Lys Lys Ala Leu Tyr Asp Leu Ala Leu Ser Trp
 275 280 285

Lys Asn Lys
 290

<210> 289
 <211> 876
 <212> DNA
 <213> Neisseria meningitidis

<400> 289
 atgtttcaga aacatttgca gaaagcctcc gacagcgctcg tcggagggac attatacgtg 60
 gttgccacgc ccacgcgcaa tttggcggac attaccctgc gcgctttggc ggtattgcaa 120
 aaggcggaca tcactctgtgc cgaagacacg cgcgttaccg cgcagctttt gagcgcgtac 180
 ggcattcagg gcaaactcgt cagcgtgcgc gaacacaacg aacggcagat ggcggacaag 240
 attgtcggct atctttcaga cggcatgggt gtggcacagg tttccgatgc ggggtacccg 300
 gccgtgtgcg acccgggcgc gaaactcgcc cgcgcgctgc gtgaggtcgg gtttaaagtt 360
 gtccctgttg tcggcgcaag cgcggtgatg gcggttttga gtgtggctgg tgtggcggga 420
 tccgattttt atttcaacgg ttttgtaccg ccgaaatcgg gcgaacgtag gaaattgttt 480
 gccaaatggg tcggggtggc gtttcccgtc gtgatgtttg aaacgccgca ccgcacggg 540
 gcgacgcttg ccgatatggc ggaactgttc cccgaacgcc gattaatgct ggcgcgcgaa 600
 atcacgaaaa cgtttgaaac gttcttaagc ggcacgggtg gggaaattca gacggcattg 660
 gcggcggacg gcaaccaatc gcgcggcgag atggtgttgg tgctttatcc ggcgcaggat 720
 gaaaaacacg aaggcttgtc cgagtccgcg caaaacatca tgaaaatcct cacagccgag 780
 ctgccgacca aacaggcggc ggagcttgcc gccaaaatca cgggcgaggg aaaaaaagct 840
 ttgtacgatc tggcactgtc ttggaaaaac aatga 876

<210> 290
 <211> 291
 <212> PRT
 <213> Neisseria meningitidis

<400> 290
 Met Phe Gln Lys His Leu Gln Lys Ala Ser Asp Ser Val Val Gly Gly
 1 5 10 15
 Thr Leu Tyr Val Val Ala Thr Pro Ile Gly Asn Leu Ala Asp Ile Thr
 20 25 30
 Leu Arg Ala Leu Ala Val Leu Gln Lys Ala Asp Ile Ile Cys Ala Glu
 35 40 45
 Asp Thr Arg Val Thr Ala Gln Leu Leu Ser Ala Tyr Gly Ile Gln Gly
 50 55 60
 Lys Leu Val Ser Val Arg Glu His Asn Glu Arg Gln Met Ala Asp Lys
 65 70 75 80
 Ile Val Gly Tyr Leu Ser Asp Gly Met Val Val Ala Gln Val Ser Asp
 85 90 95
 Ala Gly Thr Pro Ala Val Cys Asp Pro Gly Ala Lys Leu Ala Arg Arg
 100 105 110
 Val Arg Glu Val Gly Phe Lys Val Val Pro Val Val Gly Ala Ser Ala

115	120	125
Val Met Ala Ala Leu Ser	Val Ala Gly Val Ala Gly	Ser Asp Phe Tyr
130	135	140
Phe Asn Gly Phe Val Pro	Pro Lys Ser Gly Glu Arg	Arg Lys Leu Phe
145	150	155
Ala Lys Trp Val Arg Val	Ala Phe Pro Val Val Met	Phe Glu Thr Pro
	165	170
His Arg Ile Gly Ala Thr	Leu Ala Asp Met Ala Glu	Leu Phe Pro Glu
	180	185
Arg Arg Leu Met Leu Ala	Arg Glu Ile Thr Lys Thr	Phe Glu Thr Phe
	195	200
Leu Ser Gly Thr Val Gly	Glu Ile Gln Thr Ala Leu	Ala Ala Asp Gly
	210	215
Asn Gln Ser Arg Gly Glu	Met Val Leu Val Leu Tyr	Pro Ala Gln Asp
	225	230
Glu Lys His Glu Gly Leu	Ser Glu Ser Ala Gln Asn	Ile Met Lys Ile
	245	250
Leu Thr Ala Glu Leu Pro	Thr Lys Gln Ala Ala Glu	Leu Ala Ala Lys
	260	265
Ile Thr Gly Glu Gly Lys	Lys Ala Leu Tyr Asp Leu	Ala Leu Ser Trp
	275	280
Lys Asn Lys		
290		

<210> 291
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 291
 nnnnnnnn

_ 8

<210> 292
 <211> 300
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 292
 Met Ser Val Phe Gln Thr Ala Phe Phe Met Phe Gln Lys His Leu Gln
 1 5 10 15

Lys Ala Ser Asp Ser Val Val Gly Gly Thr Leu Tyr Val Val Ala Thr
 20 25 30
 Pro Ile Gly Asn Leu Ala Asp Ile Thr Leu Arg Ala Leu Ala Val Leu
 35 40 45
 Gln Lys Ala Asp Ile Ile Cys Ala Glu Asp Thr Arg Val Thr Ala Gln
 50 55 60
 Leu Leu Ser Ala Tyr Gly Ile Gln Gly Arg Leu Val Ser Val Arg Glu
 65 70 75 80
 His Asn Glu Arg Gln Met Ala Asp Lys Val Ile Gly Phe Leu Ser Asp
 85 90 95
 Gly Leu Val Val Ala Gln Val Ser Asp Ala Gly Thr Pro Ala Val Cys
 100 105 110
 Asp Pro Gly Ala Lys Leu Ala Arg Arg Val Arg Glu Ala Gly Phe Lys
 115 120 125
 Val Val Pro Val Val Gly Ala Ser Ala Val Met Ala Ala Leu Ser Val
 130 135 140
 Ala Gly Val Ala Glu Ser Asp Phe Tyr Phe Asn Gly Phe Val Pro Pro
 145 150 155 160
 Lys Ser Gly Glu Arg Arg Lys Leu Phe Ala Lys Trp Val Arg Ala Ala
 165 170 175
 Phe Pro Val Val Met Phe Glu Thr Pro His Arg Ile Gly Ala Thr Leu
 180 185 190
 Ala Asp Met Ala Glu Leu Phe Pro Glu Arg Arg Leu Met Leu Ala Arg
 195 200 205
 Glu Ile Thr Lys Thr Phe Glu Thr Phe Leu Ser Gly Thr Val Gly Glu
 210 215 220
 Ile Gln Thr Ala Leu Ala Ala Asp Gly Asn Gln Ser Arg Gly Glu Met
 225 230 235 240
 Val Leu Val Leu Tyr Pro Ala Gln Asp Glu Lys His Glu Gly Leu Ser
 245 250 255
 Glu Ser Ala Gln Asn Ala Met Lys Ile Leu Ala Ala Glu Leu Pro Thr
 260 265 270
 Lys Gln Ala Ala Glu Leu Ala Ala Lys Ile Thr Gly Glu Gly Lys Lys
 275 280 285
 Ala Leu Tyr Asp Leu Ala Leu Ser Trp Lys Asn Lys
 290 295 300

<210> 293

<211> 876

<212> DNA
 <213> Neisseria gonorrhoeae

<400> 293
 atgtttcaga aacacttgca gaaagcctcc gacagcgctcg tcggaggggac attatacgtg 60
 gttgccacgc ccacgagcaa tttggcagac attaccctgc gcgctttggc ggtattgcaa 120
 aaggcggaca tcatttggtc cgaagacacg cgcgttactg cgcagctttt gagcgcgtac 180
 ggcattcagg gcagggttgg cagtgtgcgc gaacacaacg agcggcagat ggcggacaag 240
 gtaatcggtt tcctttcaga cggcctgggt gtggcgagcagg tttccgatgc ggggtacgccg 300
 gccgtgtgcg acccggggcg gaaactcgcc cgccgcgtgc gcgaagcagg gttcaaagtc 360
 gttcccgtcg tggggcgaag cgcggtaatg gcggcggtga gtgtggccgg tgtggcggaa 420
 tccgattttt atttcaacgg ttttgtaccg ccgaaatcgg gcgaacgtag gaaattgttt 480
 gccaaatggg tgcggggcgg atttcctgtc gtcattgttg aaacgccgca ccgaatcggg 540
 gcaacgcttg ccgatatggc ggaattgttc cccgaacgcc gtctgatgct ggcgcgcgaa 600
 atcacgaaaa cgtttgaaac gttcttaagc ggcacgggtg gggaaattca gacggcattg 660
 gcggcggacg gcaaccaatc gcgcggcgag atggtgttgg tgctttatcc ggcgcaggat 720
 gaaaaacacg aaggcttgct cgagtctgcg caaaatgcga tgaaaatcct tgcggccgag 780
 ctgccgacca agcaggcggc ggagcttgcc gccaaagatta caggtgaggg caaaaaggct 840
 ttgtacgatt tggcactgtc gtggaaaaac aatatga 876

<210> 294
 <211> 291
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 294
 Met Phe Gln Lys His Leu Gln Lys Ala Ser Asp Ser Val Val Gly Gly
 1 5 10 15
 Thr Leu Tyr Val Val Ala Thr Pro Ile Gly Asn Leu Ala Asp Ile Thr
 20 25 30
 Leu Arg Ala Leu Ala Val Leu Gln Lys Ala Asp Ile Ile Cys Ala Glu
 35 40 45
 Asp Thr Arg Val Thr Ala Gln Leu Leu Ser Ala Tyr Gly Ile Gln Gly
 50 55 60
 Arg Leu Val Ser Val Arg Glu His Asn Glu Arg Gln Met Ala Asp Lys
 65 70 75 80
 Val Ile Gly Phe Leu Ser Asp Gly Leu Val Val Ala Gln Val Ser Asp
 85 90 95
 Ala Gly Thr Pro Ala Val Cys Asp Pro Gly Ala Lys Leu Ala Arg Arg
 100 105 110
 Val Arg Glu Ala Gly Phe Lys Val Val Pro Val Val Gly Ala Ser Ala
 115 120 125
 Val Met Ala Ala Leu Ser Val Ala Gly Val Ala Glu Ser Asp Phe Tyr
 130 135 140
 Phe Asn Gly Phe Val Pro Pro Lys Ser Gly Glu Arg Arg Lys Leu Phe
 145 150 155 160

Ala Lys Trp Val Arg Ala Ala Phe Pro Val Val Met Phe Glu Thr Pro
 165 170 175

His Arg Ile Gly Ala Thr Leu Ala Asp Met Ala Glu Leu Phe Pro Glu
 180 185 190

Arg Arg Leu Met Leu Ala Arg Glu Ile Thr Lys Thr Phe Glu Thr Phe
 195 200 205

Leu Ser Gly Thr Val Gly Glu Ile Gln Thr Ala Leu Ala Ala Asp Gly
 210 215 220

Asn Gln Ser Arg Gly Glu Met Val Leu Val Leu Tyr Pro Ala Gln Asp
 225 230 235 240

Glu Lys His Glu Gly Leu Ser Glu Ser Ala Gln Asn Ala Met Lys Ile
 245 250 255

Leu Ala Ala Glu Leu Pro Thr Lys Gln Ala Ala Glu Leu Ala Ala Lys
 260 265 270

Ile Thr Gly Glu Gly Lys Lys Ala Leu Tyr Asp Leu Ala Leu Ser Trp
 275 280 285

Lys Asn Lys
 290

<210> 295
 <211> 185
 <212> DNA
 <213> Neisseria meningitidis

<400> 295
 atgaaacaga aaaaaaccgc tgccgcagtt attgctgcaa tggtggcagg ttttgccggca 60
 gcaaagcacc cgaaatcgac ccggcttttg agttgggtcag aaaccagttg gagcaggggtt 120
 tgagacagga aaaagcccgcc ttgaaaatcg atgccctttt ggaagaaaac ggtgtcaaac 180
 cgtaa 185

<210> 296
 <211> 60
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (21)..(21)
 <223> Xaa= any amino acid

<400> 296
 Met Lys Gln Lys Lys Thr Ala Ala Ala Val Ile Ala Ala Met Leu Ala
 1 5 10 15

Gly Phe Ala Ala Xaa Lys Ala Pro Glu Ile Asp Pro Ala Leu Glu Leu
 20 25 30

Val Arg Asn Gln Leu Glu Gln Gly Leu Arg Gln Glu Lys Ala Arg Leu

35

40

45

Lys Ile Asp Ala Leu Leu Glu Glu Asn Gly Val Lys
50 55 60

<210> 297
<211> 759
<212> DNA
<213> Neisseria meningitidis

<400> 297
atgaaacaga aaaaaaccgc tgccgcagtt attgctgcaa tgttggcagg ttttgcggca 60
gccaaagcac ccgaaatcga cccggctttg gtggatacgc tgggtggcgca gatcatgcag 120
caggcagacc ggcatgcgga gcagtcccaa aaaccggacg ggcaggcaat ccgaaacgat 180
gccgtccgcc ggctacaaac tttggaagtt ttgaaaaaca gggcattgaa ggaaggtttg 240
gataaggata aggatgtcca aaaccgcttt aaaatcgccg aagcgtcttt ttatgccgag 300
gagtacgtcc gttttctgga acgttcggaa acggtttccg aagacgagct gcacaagttt 360
tacgaacagc aaatccgcat gatcaaattg cagcaggtca gcttcgcaac cgaagaggag 420
gcgcgtcagg cgcagcagct cctgctcaaa gggctgtctt ttgaagggtgatgaagcgt 480
tatccgaacg acgagcaggg ttttgacggt ttcattatgg cgcagcagct tcccagagccg 540
ctggcttcgc agtttgccgc gatgaatcgg ggcgacgtta cccgcgatcc ggtcaaattg 600
ggcgaacgct attatctgtt caaactcagc gaggtcggga aaaaccccca cgcgagcct 660
ttcagattgg tcagaaacca gttggagcag ggtttgagac aggaaaaagc ccgcttgaaa 720
atcgatgccc ttttgaaga aaacggtgtc aaaccgtaa 759

<210> 298
<211> 252
<212> PRT
<213> Neisseria meningitidis

<400> 298
Met Lys Gln Lys Lys Thr Ala Ala Ala Val Ile Ala Ala Met Leu Ala
1 5 10 15
Gly Phe Ala Ala Ala Lys Ala Pro Glu Ile Asp Pro Ala Leu Val Asp
20 25 30
Thr Leu Val Ala Gln Ile Met Gln Gln Ala Asp Arg His Ala Glu Gln
35 40 45
Ser Gln Lys Pro Asp Gly Gln Ala Ile Arg Asn Asp Ala Val Arg Arg
50 55 60
Leu Gln Thr Leu Glu Val Leu Lys Asn Arg Ala Leu Lys Glu Gly Leu
65 70 75 80
Asp Lys Asp Lys Asp Val Gln Asn Arg Phe Lys Ile Ala Glu Ala Ser
85 90 95
Phe Tyr Ala Glu Glu Tyr Val Arg Phe Leu Glu Arg Ser Glu Thr Val
100 105 110
Ser Glu Asp Glu Leu His Lys Phe Tyr Glu Gln Gln Ile Arg Met Ile
115 120 125
Lys Leu Gln Gln Val Ser Phe Ala Thr Glu Glu Glu Ala Arg Gln Ala

130

135

140

Gln Gln Leu Leu Leu Lys Gly Leu Ser Phe Glu Gly Leu Met Lys Arg
145 150 155 160

Tyr Pro Asn Asp Glu Gln Ala Phe Asp Gly Phe Ile Met Ala Gln Gln
165 170 175

Leu Pro Glu Pro Leu Ala Ser Gln Phe Ala Ala Met Asn Arg Gly Asp
180 185 190

Val Thr Arg Asp Pro Val Lys Leu Gly Glu Arg Tyr Tyr Leu Phe Lys
195 200 205

Leu Ser Glu Val Gly Lys Asn Pro Asp Ala Gln Pro Phe Glu Leu Val
210 215 220

Arg Asn Gln Leu Glu Gln Gly Leu Arg Gln Glu Lys Ala Arg Leu Lys
225 230 235 240

Ile Asp Ala Leu Leu Glu Glu Asn Gly Val Lys Pro
245 250

<210> 299

<211> 759

<212> DNA

<213> Neisseria meningitidis

<400> 299

atgaaacaga	aaaaaacgcg	tgccgcagtt	attgctgcaa	tggtggcagg	ttttgcgcca	60
gccaaagcac	ccgaaatcga	cccggttttg	gtggatacgc	tggtggcgca	gatcatgcag	120
caggcagacc	ggcatgcgga	gcagtcctaa	aaaccggacg	ggcaggcaat	ccgaaacgat	180
gccgtccgtc	ggctgcaaac	tttgaagatt	ttgaaaaaca	gggcattgaa	ggaagggttg	240
gataaggata	aggatgtcca	aaaccgcttt	aaaatcgccg	aagcgtcttt	ttatgccgag	300
gagtacgtcc	gttttctgga	acgttcggaa	acggtttccg	aaagcgcact	gcgtcagttt	360
tatgagcggc	aaatccgcat	gatcaaattg	cagcaggtca	gcttcgcaac	cgaagaggag	420
gcgcgtcagg	cgcagcagct	cctgctcaaa	gggctgtctt	ttgaagggtc	gatgaagcgt	480
tatccgaacg	acgagcaggc	ttttgacggg	ttcattatgg	cgcagcagct	tcccgaagccg	540
ctggcttcgc	agttttgcagc	gatgaatcgg	ggcgacgtta	cccgcgatcc	ggtcaaattg	600
ggcgaacgct	attatctgtt	caaactcagc	gaggtcggga	aaaacccccga	cgcgagcct	660
ttcgagttgg	tcagaaacca	gttgaacaa	ggtttgagac	aggaaaaagc	ccgcttgaaa	720
atcgatgcca	ttttggaaga	aaacggtgtc	aaaccgtaa			759

<210> 300

<211> 252

<212> PRT

<213> Neisseria meningitidis

<400> 300

Met Lys Gln Lys Lys Thr Ala Ala Ala Val Ile Ala Ala Met Leu Ala
1 5 10 15

Gly Phe Ala Ala Ala Lys Ala Pro Glu Ile Asp Pro Ala Leu Val Asp
20 25 30

Thr Leu Val Ala Gln Ile Met Gln Gln Ala Asp Arg His Ala Glu Gln

35	40	45
Ser Gln Lys Pro Asp Gly Gln Ala Ile Arg Asn Asp Ala Val Arg Arg		
50	55	60
Leu Gln Thr Leu Glu Val Leu Lys Asn Arg Ala Leu Lys Glu Gly Leu		
65	70	75 80
Asp Lys Asp Lys Asp Val Gln Asn Arg Phe Lys Ile Ala Glu Ala Ser		
	85	90 95
Phe Tyr Ala Glu Glu Tyr Val Arg Phe Leu Glu Arg Ser Glu Thr Val		
	100	105 110
Ser Glu Ser Ala Leu Arg Gln Phe Tyr Glu Arg Gln Ile Arg Met Ile		
	115	120 125
Lys Leu Gln Gln Val Ser Phe Ala Thr Glu Glu Glu Ala Arg Gln Ala		
	130	135 140
Gln Gln Leu Leu Leu Lys Gly Leu Ser Phe Glu Gly Leu Met Lys Arg		
145	150	155 160
Tyr Pro Asn Asp Glu Gln Ala Phe Asp Gly Phe Ile Met Ala Gln Gln		
	165	170 175
Leu Pro Glu Pro Leu Ala Ser Gln Phe Ala Ala Met Asn Arg Gly Asp		
	180	185 190
Val Thr Arg Asp Pro Val Lys Leu Gly Glu Arg Tyr Tyr Leu Phe Lys		
	195	200 205
Leu Ser Glu Val Gly Lys Asn Pro Asp Ala Gln Pro Phe Glu Leu Val		
	210	215 220
Arg Asn Gln Leu Glu Gln Gly Leu Arg Gln Glu Lys Ala Arg Leu Lys		
225	230	235 240
Ile Asp Ala Ile Leu Glu Glu Asn Gly Val Lys Pro		
	245	250

<210> 301
 <211> 759
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 301	
atgaaacaga aaaagaccgc tgccgcagtt attgctgcaa tgttggcagg ttttgccgga	60
gccaaagcac ccgaaatcga cccggctttg gtggatacgc tgggtggcgca gatcatgcag	120
caggcagacc ggcattgcgga gcagtcacca agaccggacg ggcaggcaat ccgaaacgat	180
gccgtccgcc ggctgcaaac tttggaagtt ttgaaaaaca gggcattgaa ggaaggtttg	240
gataaggata aggatgtcca aaaccgcttt aaaatcgccg aagcgtcttt ttatgccgag	300
gagtacgtcc gttttctgga acgttcggaa acggtttccg aaagcgcact gcgtcagttt	360
tatgagcggc aaatccgcgat gatcaaattg cagcaggtca gcttcgcaac cgaagaggag	420
gcgcgtcagg cgcagcagct cctgctcaaa gggctgtctt ttgaagggt gatgaagcgt	480
tatccgaacg acgagcaggc gttcgacggt ttcattatgg cgcagcagct tcccagaccg	540

ctggcttcgc	agtttgccgg	tatgaaccgt	ggcgacgtta	cccgcaatcc	ggtcaaattg	600
ggcgaacgct	attacctgtt	caaactcggc	gcggtcggga	aaaaccccga	cgcgcagcct	660
ttcgagttgg	tcagaaacca	gttggaacaa	ggtttgaggc	aggaaaaaagc	ccgcttgaaa	720
atcgatgccc	ttttggaaga	aaacggtgtc	aaaccgtaa			759

<210> 302
 <211> 252
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 302

Met	Lys	Gln	Lys	Lys	Thr	Ala	Ala	Ala	Val	Ile	Ala	Ala	Met	Leu	Ala
1			5						10					15	
Gly	Phe	Ala	Ala	Ala	Lys	Ala	Pro	Glu	Ile	Asp	Pro	Ala	Leu	Val	Asp
		20						25					30		
Thr	Leu	Val	Ala	Gln	Ile	Met	Gln	Gln	Ala	Asp	Arg	His	Ala	Glu	Gln
		35					40					45			
Ser	Gln	Arg	Pro	Asp	Gly	Gln	Ala	Ile	Arg	Asn	Asp	Ala	Val	Arg	Arg
	50					55					60				
Leu	Gln	Thr	Leu	Glu	Val	Leu	Lys	Asn	Arg	Ala	Leu	Lys	Glu	Gly	Leu
65				70					75					80	
Asp	Lys	Asp	Lys	Asp	Val	Gln	Asn	Arg	Phe	Lys	Ile	Ala	Glu	Ala	Ser
			85						90					95	
Phe	Tyr	Ala	Glu	Glu	Tyr	Val	Arg	Phe	Leu	Glu	Arg	Ser	Glu	Thr	Val
		100						105					110		
Ser	Glu	Ser	Ala	Leu	Arg	Gln	Phe	Tyr	Glu	Arg	Gln	Ile	Arg	Met	Ile
		115					120					125			
Lys	Leu	Gln	Gln	Val	Ser	Phe	Ala	Thr	Glu	Glu	Glu	Ala	Arg	Gln	Ala
	130					135					140				
Gln	Gln	Leu	Leu	Leu	Lys	Gly	Leu	Ser	Phe	Glu	Gly	Leu	Met	Lys	Arg
145					150					155				160	
Tyr	Pro	Asn	Asp	Glu	Gln	Ala	Phe	Asp	Gly	Phe	Ile	Met	Ala	Gln	Gln
				165					170					175	
Leu	Pro	Glu	Pro	Leu	Ala	Ser	Gln	Phe	Ala	Gly	Met	Asn	Arg	Gly	Asp
		180						185					190		
Val	Thr	Arg	Asn	Pro	Val	Lys	Leu	Gly	Glu	Arg	Tyr	Tyr	Leu	Phe	Lys
		195					200					205			
Leu	Gly	Ala	Val	Gly	Lys	Asn	Pro	Asp	Ala	Gln	Pro	Phe	Glu	Leu	Val
	210					215					220				
Arg	Asn	Gln	Leu	Glu	Gln	Gly	Leu	Arg	Gln	Glu	Lys	Ala	Arg	Leu	Lys
225					230					235				240	

Ile Asp Ala Leu Leu Glu Glu Asn Gly Val Lys Pro
 245 250

<210> 303
 <211> 622
 <212> DNA
 <213> Neisseria meningitidis

<400> 303
 atgaaaaaat ctttccttac gcttggtctg tattcgtctt tacttaccgc cagcgaaatt 60
 gccttaccct ttggaattgg ggattgaaac cttaccggcg gcaaaaattg cggaaacgtt 120
 tgcgctgaca tttgtgattg ctgcgctgta tctgtttgcg cgtaataagg tgacgcgttt 180
 gttgattgcg gtgttttttg cgttcagcat tattgccaac aatgtgcatt acgcggatta 240
 tcaaagctgg atgacgcaaa ccgtattcga gcagctgcaa aagactcctg acggcaactg 300
 gctgtttgcc tatacctccg atcatggcca gtatgttcgc caagatatct acaatcaagg 360
 cacggtgcag cccgacagct atctcgtgcc gctagtgttg tacagcccgg ataaggccgt 420
 gcaacaggct gccaaaccagg cttttgcgcc ttgcgagatt gccttccatc agcagctttc 480
 aacgttcctg attcacacgt tgggctacga tatgccgggt tcaggttgtc gcgaaggctc 540
 ggtaacgggc aacctgatta cgggtgatgc aggcagcttg aacattcgcg acggcaaggc 600
 ggaatatgtt tatccgcaat ga 622

<210> 304
 <211> 206
 <212> PRT
 <213> Neisseria meningitidis

<400> 304
 Met Lys Lys Ser Phe Leu Thr Leu Val Leu Tyr Ser Ser Leu Leu Thr
 1 5 10 15
 Ala Ser Glu Ile Ala Tyr Pro Leu Glu Leu Gly Ile Glu Thr Leu Pro
 20 25 30
 Ala Ala Lys Ile Ala Glu Thr Phe Ala Leu Thr Phe Val Ile Ala Ala
 35 40 45
 Leu Tyr Leu Phe Ala Arg Asn Lys Val Thr Arg Leu Leu Ile Ala Val
 50 55 60
 Phe Phe Ala Phe Ser Ile Ile Ala Asn Asn Val His Tyr Ala Asp Tyr
 65 70 75 80
 Gln Ser Trp Met Thr Gln Thr Val Phe Glu Gln Leu Gln Lys Thr Pro
 85 90 95
 Asp Gly Asn Trp Leu Phe Ala Tyr Thr Ser Asp His Gly Gln Tyr Val
 100 105 110
 Arg Gln Asp Ile Tyr Asn Gln Gly Thr Val Gln Pro Asp Ser Tyr Leu
 115 120 125
 Val Pro Leu Val Leu Tyr Ser Pro Asp Lys Ala Val Gln Gln Ala Ala
 130 135 140
 Asn Gln Ala Phe Ala Pro Cys Glu Ile Ala Phe His Gln Gln Leu Ser
 145 150 155 160

Thr Phe Leu Ile His Thr Leu Gly Tyr Asp Met Pro Val Ser Gly Cys
 165 170 175

Arg Glu Gly Ser Val Thr Gly Asn Leu Ile Thr Gly Asp Ala Gly Ser
 180 185 190

Leu Asn Ile Arg Asp Gly Lys Ala Glu Tyr Val Tyr Pro Gln
 195 200 205

<210> 305
 <211> 1575
 <212> DNA
 <213> Neisseria meningitidis

<400> 305
 atgaaaaaat ctttccttac gcttggtctg tattcgtctt tacttaccgc cagcgaaatt 60
 gcctatcgct ttgtatttgg gattgaaacc ttaccggcgg caaaaattgc ggaaacgttt 120
 gcgctgacat ttgtgattgc tgcgctgtat ctggttgccg gttataagg gacgcgtttg 180
 ttgattgcgg tggttttttgc gttcagcatt attgccaaca atgtgcatta cgcggtttat 240
 caaagctgga tgacgggcat caattattgg ctgatgctga aagaggttac cgaagtcggc 300
 agcgcgggtg cgtcgatgtt ggataagttg tggctgcctg tgttggtggg cgtgttgga 360
 gtcattgtgt tttgcagcct tgccaagtcc cgcgctaaga cgcatttttc tgccgatata 420
 ctggttgccct tcctaattgt gatgattttc gtgcgttcgt tcgacacgaa acaagagcac 480
 ggtatttcgc ccaaaccgac atacagccgc atcaaagcca attatttcag cttcggttat 540
 tttgtcggac gcgtgttgcc gtatcagttg tttgatttaa gcaggattcc cgcctttaag 600
 cagcctgctc caagcaaaat cgggcagggc agtggttcaa atatcgctct gattatgggc 660
 gaaagcgaaa gcgcggcgca tttgaagctg tttggctacg gacgcgaaac ttcgccgttt 720
 ttaaccggc tgtcgcaagc cgattttaag ccgattgtga aacaaagtta ttcgcaggc 780
 tttatgatcg cagtgtccct gccagtttt ttcaatgcga taccgcacgc caacggcttg 840
 gaacaaatca gcggcgcgca taccaatatg ttccgcctcg ccaaagagca gggctatgaa 900
 acgtattttt acagcgcgca ggcggaaaac gagatggcga ttttgaactt aatcggttaag 960
 aaatggatag accatctgat tcagccgacg caacttggct acggcaacgg cgacaatatg 1020
 cccgatgaga agctgctgcc gttgttcgac aaaatcaatt tgcagcaggg caagcatttt 1080
 atcgtgttgc accaacgcgg ttgcacgcgc ccatacggcg cattgttgca gcctcaagat 1140
 aaagtattcg gcgaagccga tattgtggat aagtacgaca acaccatcca caaaaccgac 1200
 caaatgattc aaaccgtatt cgagcagctg caaaagcagc ctgacggcaa ctggctgttt 1260
 gcctatacct ccgatcatgg ccagtatgtt gcgcaagata tctacaatca aggcacggtg 1320
 cagcccgaca gctatctcgt gccgctagtg ttgtacagcc cggataaggc cgtgcaacag 1380
 gctgccaacc aggtttttgc gccttgcgag attgccttcc atcagcagct ttcaacgttc 1440
 ctgattcaca cgttgggcta cgatatgccg gtttcagggt gtcgcgaagg ctcggtaacg 1500
 ggcaacctga ttacgggtga tgcaggcagc ttgaacattc gcgacggcaa ggcggaatat 1560
 gtttatccgc aatga 1575

<210> 306
 <211> 524
 <212> PRT
 <213> Neisseria meningitidis

<400> 306
 Met Lys Lys Ser Phe Leu Thr Leu Val Leu Tyr Ser Ser Leu Leu Thr
 1 5 10 15
 Ala Ser Glu Ile Ala Tyr Arg Phe Val Phe Gly Ile Glu Thr Leu Pro
 20 25 30
 Ala Ala Lys Ile Ala Glu Thr Phe Ala Leu Thr Phe Val Ile Ala Ala

35

40

45

Leu	Tyr	Leu	Phe	Ala	Arg	Tyr	Lys	Val	Thr	Arg	Leu	Leu	Ile	Ala	Val
50						55					60				
Phe	Phe	Ala	Phe	Ser	Ile	Ile	Ala	Asn	Asn	Val	His	Tyr	Ala	Val	Tyr
65				70						75					80
Gln	Ser	Trp	Met	Thr	Gly	Ile	Asn	Tyr	Trp	Leu	Met	Leu	Lys	Glu	Val
				85					90					95	
Thr	Glu	Val	Gly	Ser	Ala	Gly	Ala	Ser	Met	Leu	Asp	Lys	Leu	Trp	Leu
			100					105					110		
Pro	Val	Leu	Trp	Gly	Val	Leu	Glu	Val	Met	Leu	Phe	Cys	Ser	Leu	Ala
		115					120					125			
Lys	Phe	Arg	Arg	Lys	Thr	His	Phe	Ser	Ala	Asp	Ile	Leu	Phe	Ala	Phe
130						135					140				
Leu	Met	Leu	Met	Ile	Phe	Val	Arg	Ser	Phe	Asp	Thr	Lys	Gln	Glu	His
145				150						155					160
Gly	Ile	Ser	Pro	Lys	Pro	Thr	Tyr	Ser	Arg	Ile	Lys	Ala	Asn	Tyr	Phe
				165					170					175	
Ser	Phe	Gly	Tyr	Phe	Val	Gly	Arg	Val	Leu	Pro	Tyr	Gln	Leu	Phe	Asp
			180					185					190		
Leu	Ser	Arg	Ile	Pro	Ala	Phe	Lys	Gln	Pro	Ala	Pro	Ser	Lys	Ile	Gly
		195					200					205			
Gln	Gly	Ser	Val	Gln	Asn	Ile	Val	Leu	Ile	Met	Gly	Glu	Ser	Glu	Ser
	210					215					220				
Ala	Ala	His	Leu	Lys	Leu	Phe	Gly	Tyr	Gly	Arg	Glu	Thr	Ser	Pro	Phe
225					230					235					240
Leu	Thr	Arg	Leu	Ser	Gln	Ala	Asp	Phe	Lys	Pro	Ile	Val	Lys	Gln	Ser
				245					250					255	
Tyr	Ser	Ala	Gly	Phe	Met	Thr	Ala	Val	Ser	Leu	Pro	Ser	Phe	Phe	Asn
			260					265					270		
Ala	Ile	Pro	His	Ala	Asn	Gly	Leu	Glu	Gln	Ile	Ser	Gly	Gly	Asp	Thr
	275						280					285			
Asn	Met	Phe	Arg	Leu	Ala	Lys	Glu	Gln	Gly	Tyr	Glu	Thr	Tyr	Phe	Tyr
290						295					300				
Ser	Ala	Gln	Ala	Glu	Asn	Glu	Met	Ala	Ile	Leu	Asn	Leu	Ile	Gly	Lys
305					310					315					320
Lys	Trp	Ile	Asp	His	Leu	Ile	Gln	Pro	Thr	Gln	Leu	Gly	Tyr	Gly	Asn
				325					330					335	

Gly Asp Asn Met Pro Asp Glu Lys Leu Leu Pro Leu Phe Asp Lys Ile
 340 345 350
 Asn Leu Gln Gln Gly Lys His Phe Ile Val Leu His Gln Arg Gly Ser
 355 360 365
 His Ala Pro Tyr Gly Ala Leu Leu Gln Pro Gln Asp Lys Val Phe Gly
 370 375 380
 Glu Ala Asp Ile Val Asp Lys Tyr Asp Asn Thr Ile His Lys Thr Asp
 385 390 395 400
 Gln Met Ile Gln Thr Val Phe Glu Gln Leu Gln Lys Gln Pro Asp Gly
 405 410 415
 Asn Trp Leu Phe Ala Tyr Thr Ser Asp His Gly Gln Tyr Val Arg Gln
 420 425 430
 Asp Ile Tyr Asn Gln Gly Thr Val Gln Pro Asp Ser Tyr Leu Val Pro
 435 440 445
 Leu Val Leu Tyr Ser Pro Asp Lys Ala Val Gln Gln Ala Ala Asn Gln
 450 455 460
 Ala Phe Ala Pro Cys Glu Ile Ala Phe His Gln Gln Leu Ser Thr Phe
 465 470 475 480
 Leu Ile His Thr Leu Gly Tyr Asp Met Pro Val Ser Gly Cys Arg Glu
 485 490 495
 Gly Ser Val Thr Gly Asn Leu Ile Thr Gly Asp Ala Gly Ser Leu Asn
 500 505 510
 Ile Arg Asp Gly Lys Ala Glu Tyr Val Tyr Pro Gln
 515 520

<210> 307
 <211> 1275
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 307
 atgaaaaaat ccctttttcgt tctcttttctg tattcgtccc tactttactgc cagcgaaatt 60
 gcttatcgct ttgtattcgg aattgaaacc ttaccggctg caaaaatggc agaaacgttt 120
 gcgctgacat ttgtgattgc tgcgctgtat ctgttttgcgc gttataaggc aacgcgtttg 180
 ttgattgcgg tgtttttcgc gttcagcatt attgccaca atgtgcatta cgcggtttat 240
 caaagctgga taacgggcat taattattgg ctgatgctga aagagattac cgaagttggc 300
 ggcgcagggg cgtcgatgtt ggataagttg tggctgcctg cgttgtggg cgtgttgga 360
 gtcattgttg tttgcagcct tgccaagtcc cgccgtaaga cgcatttttc tgccgatata 420
 ctgtttgcct tcctaattgct gatgattttc gtgcgttcgt tcgacacgaa acaagaacac 480
 ggtattttcgc ccaaaccgac atacagccgc atcaaagcca attatttcag cttcggttat 540
 tttgtcggac gcgtgttgcc gtatcagttg tttgatttaa gcaagattcc tgtgttcaaa 600
 cagcctgctc caagcagaat cgggcaaggc agtattcaaa atatcgtcct gattatgggc 660
 gaaagcgaaa gcgcggcgca tttgaaattg tttggctacg ggcgcgaaac ttcgccggtt 720
 ttgacccagc tttcgcaagc cgatttttaag ccgattgtga aacaaagtta ttccgcaggc 780
 tttatgacgg cagtatccct gccagtttc tttaacgtca taccgcatgc caacggcttg 840

gaacaaatca	gcggcggcga	tattgtggat	aagtagcaca	acaccatcca	caaaaccgac	900
caaatgattc	aaaccgtatt	cgagcagctg	caaaagcagc	ctgacggcaa	ctggctgttt	960
gcctatacct	ccgatcatgg	ccagtatggt	cgccaagata	tctacaatca	aggcacggtg	1020
cagccccgaca	gctatctcgt	gccgctggtg	ttgtacagcc	cggataaggc	cgtgcaacag	1080
gctgccaacc	aggcttttgc	gccttgcgag	attgccttcc	atcagcagct	ttcaacgttc	1140
ctgattcaca	cgttgggcta	cgatatgccg	gtttcagggt	gtcgcgaagg	ctcggtaacg	1200
ggcaacctga	ttacgggtga	tgcaggcagc	ttgaacattc	gcgacggcaa	ggcggaatat	1260
gtttatccgc	aatga					1275

<210> 308
 <211> 424
 <212> PRT
 <213> Neisseria meningitidis

<400> 308

Met	Lys	Lys	Ser	Leu	Phe	Val	Leu	Phe	Leu	Tyr	Ser	Ser	Leu	Leu	Thr
1			5					10					15		
Ala	Ser	Glu	Ile	Ala	Tyr	Arg	Phe	Val	Phe	Gly	Ile	Glu	Thr	Leu	Pro
		20					25						30		
Ala	Ala	Lys	Met	Ala	Glu	Thr	Phe	Ala	Leu	Thr	Phe	Val	Ile	Ala	Ala
		35					40					45			
Leu	Tyr	Leu	Phe	Ala	Arg	Tyr	Lys	Ala	Thr	Arg	Leu	Leu	Ile	Ala	Val
	50					55				60					
Phe	Phe	Ala	Phe	Ser	Ile	Ile	Ala	Asn	Asn	Val	His	Tyr	Ala	Val	Tyr
65					70				75					80	
Gln	Ser	Trp	Ile	Thr	Gly	Ile	Asn	Tyr	Trp	Leu	Met	Leu	Lys	Glu	Ile
			85						90					95	
Thr	Glu	Val	Gly	Gly	Ala	Gly	Ala	Ser	Met	Leu	Asp	Lys	Leu	Trp	Leu
		100						105					110		
Pro	Ala	Leu	Trp	Gly	Val	Leu	Glu	Val	Met	Leu	Phe	Cys	Ser	Leu	Ala
		115					120					125			
Lys	Phe	Arg	Arg	Lys	Thr	His	Phe	Ser	Ala	Asp	Ile	Leu	Phe	Ala	Phe
	130					135					140				
Leu	Met	Leu	Met	Ile	Phe	Val	Arg	Ser	Phe	Asp	Thr	Lys	Gln	Glu	His
145				150						155				160	
Gly	Ile	Ser	Pro	Lys	Pro	Thr	Tyr	Ser	Arg	Ile	Lys	Ala	Asn	Tyr	Phe
			165						170					175	
Ser	Phe	Gly	Tyr	Phe	Val	Gly	Arg	Val	Leu	Pro	Tyr	Gln	Leu	Phe	Asp
		180						185					190		
Leu	Ser	Lys	Ile	Pro	Val	Phe	Lys	Gln	Pro	Ala	Pro	Ser	Arg	Ile	Gly
		195					200					205			
Gln	Gly	Ser	Ile	Gln	Asn	Ile	Val	Leu	Ile	Met	Gly	Glu	Ser	Glu	Ser
	210					215					220				

Ala Ala His Leu Lys Leu Phe Gly Tyr Gly Arg Glu Thr Ser Pro Phe
 225 230 235 240
 Leu Thr Gln Leu Ser Gln Ala Asp Phe Lys Pro Ile Val Lys Gln Ser
 245 250 255
 Tyr Ser Ala Gly Phe Met Thr Ala Val Ser Leu Pro Ser Phe Phe Asn
 260 265 270
 Val Ile Pro His Ala Asn Gly Leu Glu Gln Ile Ser Gly Gly Asp Ile
 275 280 285
 Val Asp Lys Tyr Asp Asn Thr Ile His Lys Thr Asp Gln Met Ile Gln
 290 295 300
 Thr Val Phe Glu Gln Leu Gln Lys Gln Pro Asp Gly Asn Trp Leu Phe
 305 310 315 320
 Ala Tyr Thr Ser Asp His Gly Gln Tyr Val Arg Gln Asp Ile Tyr Asn
 325 330 335
 Gln Gly Thr Val Gln Pro Asp Ser Tyr Leu Val Pro Leu Val Leu Tyr
 340 345 350
 Ser Pro Asp Lys Ala Val Gln Gln Ala Ala Asn Gln Ala Phe Ala Pro
 355 360 365
 Cys Glu Ile Ala Phe His Gln Gln Leu Ser Thr Phe Leu Ile His Thr
 370 375 380
 Leu Gly Tyr Asp Met Pro Val Ser Gly Cys Arg Glu Gly Ser Val Thr
 385 390 395 400
 Gly Asn Leu Ile Thr Gly Asp Ala Gly Ser Leu Asn Ile Arg Asp Gly
 405 410 415
 Lys Ala Glu Tyr Val Tyr Pro Gln
 420

<210> 309
 <211> 1575
 <212> DNA
 <213> *Neisseria gonorrhoeae*

<400> 309
 atgaaaaaat cccttttcgt tctctttctg tattcatccc tacttaccgc cagcgaaatc 60
 gcctatcgct ttgtattcgg aattgaaacc ttaccggctg caaaaatggc ggaaacgttt 120
 gcgctgacat ttatgattgc tgcgctgtat ctgtttgcgc gttataaggc ttcgcggctg 180
 ctgattgcgg tgtttttcgc gtccagcatg attgccaaaca atgtgcatta cgcggtttat 240
 caaagctgga tgacgggtat taactattgg ctgatgctga aagaggttac cgaagtcggc 300
 agcgcgggcg cgtcgatgtt ggataagttg tggctgcctg ctttgtgggg cgtggcggaa 360
 gtcattgtgt tttgcagcct tgccaagttc cgccgtaaga cgcatttttc tgccgatata 420
 ctgtttgcct tcctaattgct gatgattttc gtgcgttcgt tcgacacgaa acaagagcac 480
 ggtatttcgc ccaaaccgac atacagccgc atcaaagcca attatttcag cttcggttat 540
 tttgtcgggc gcgtgttgcc gtatcagttg tttgatttaa gcaagatccc tgtgttcaaa 600
 cagcctgctc caagcaaaat cgggcaaggc agtattcaaa atatcgtcct gattatgggc 660

gaaagcgaaa	gcgcggcgca	tttgaaattg	tttggttacg	ggcgcgaaac	ttcgccgttt	720
ttaacccggc	tgtcgcaagc	cgattttaag	ccgattgtga	aacaaagtta	ttccgcaggc	780
tttatgacgg	cagtatccct	gcccagtttc	tttaacgtca	taccgcacgc	caacggcttg	840
gaacaaatca	gcggcggcga	taccaatatg	ttccgcctcg	ccaaagagca	gggctatgaa	900
acgtatTTTT	acagtgccca	ggctgaaaac	caaatggcaa	ttttgaactt	aatcggttaag	960
aaatggatag	accatctgat	tcagccgacg	caacttggct	acggcaacgg	cgacaatatg	1020
cccgatgaga	agctgctgcc	gttggttcgac	aaaatcaatt	tgcagcaggg	caggcatttt	1080
atcgtgttgc	accaacgcgg	ttcgacgcgc	ccatacggcg	cattgttgca	gcctcaagat	1140
aaagtattcg	gcgaagccga	tattgtggat	aagtacgaca	acaccatcca	caaaaccgac	1200
caaatgattc	aaaccgtatt	cgagcagctg	caaaagcagc	ctgacggcaa	ctggctgttt	1260
gcctatacct	ccgatcatgg	ccagtatgtg	cgccaagata	tctacaatca	aggcacggtg	1320
cagcccgaca	gctatattgt	gcctctgggt	ttgtacagcc	cggataaggc	cgtgcaacag	1380
gctgccaacc	aggcttttgc	gccttgcgag	attgccttcc	atcagcagct	ttcaacgttc	1440
ctgattcaca	cgttgggcta	cgatatgccg	gtttcaggtt	gtcgcgaagg	ctcggtaaca	1500
ggcaacctga	ttacgggcga	tgcaggcagc	ttgaacattc	gcaacggcaa	ggcggaatat	1560
gtttatccgc	aataa					1575

<210> 310
 <211> 524
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 310

Met	Lys	Lys	Ser	Leu	Phe	Val	Leu	Phe	Leu	Tyr	Ser	Ser	Leu	Leu	Thr
1			5					10						15	
Ala	Ser	Glu	Ile	Ala	Tyr	Arg	Phe	Val	Phe	Gly	Ile	Glu	Thr	Leu	Pro
			20					25					30		
Ala	Ala	Lys	Met	Ala	Glu	Thr	Phe	Ala	Leu	Thr	Phe	Met	Ile	Ala	Ala
		35					40					45			
Leu	Tyr	Leu	Phe	Ala	Arg	Tyr	Lys	Ala	Ser	Arg	Leu	Leu	Ile	Ala	Val
	50					55				60					
Phe	Phe	Ala	Phe	Ser	Met	Ile	Ala	Asn	Asn	Val	His	Tyr	Ala	Val	Tyr
65					70				75					80	
Gln	Ser	Trp	Met	Thr	Gly	Ile	Asn	Tyr	Trp	Leu	Met	Leu	Lys	Glu	Val
				85					90					95	
Thr	Glu	Val	Gly	Ser	Ala	Gly	Ala	Ser	Met	Leu	Asp	Lys	Leu	Trp	Leu
		100						105					110		
Pro	Ala	Leu	Trp	Gly	Val	Ala	Glu	Val	Met	Leu	Phe	Cys	Ser	Leu	Ala
		115					120					125			
Lys	Phe	Arg	Arg	Lys	Thr	His	Phe	Ser	Ala	Asp	Ile	Leu	Phe	Ala	Phe
	130					135					140				
Leu	Met	Leu	Met	Ile	Phe	Val	Arg	Ser	Phe	Asp	Thr	Lys	Gln	Glu	His
145				150						155				160	
Gly	Ile	Ser	Pro	Lys	Pro	Thr	Tyr	Ser	Arg	Ile	Lys	Ala	Asn	Tyr	Phe
				165					170					175	

Ser Phe Gly Tyr Phe Val Gly Arg Val Leu Pro Tyr Gln Leu Phe Asp	180	185	190
Leu Ser Lys Ile Pro Val Phe Lys Gln Pro Ala Pro Ser Lys Ile Gly	195	200	205
Gln Gly Ser Ile Gln Asn Ile Val Leu Ile Met Gly Glu Ser Glu Ser	210	215	220
Ala Ala His Leu Lys Leu Phe Gly Tyr Gly Arg Glu Thr Ser Pro Phe	225	230	235
Leu Thr Arg Leu Ser Gln Ala Asp Phe Lys Pro Ile Val Lys Gln Ser	245	250	255
Tyr Ser Ala Gly Phe Met Thr Ala Val Ser Leu Pro Ser Phe Phe Asn	260	265	270
Val Ile Pro His Ala Asn Gly Leu Glu Gln Ile Ser Gly Gly Asp Thr	275	280	285
Asn Met Phe Arg Leu Ala Lys Glu Gln Gly Tyr Glu Thr Tyr Phe Tyr	290	295	300
Ser Ala Gln Ala Glu Asn Gln Met Ala Ile Leu Asn Leu Ile Gly Lys	305	310	315
Lys Trp Ile Asp His Leu Ile Gln Pro Thr Gln Leu Gly Tyr Gly Asn	325	330	335
Gly Asp Asn Met Pro Asp Glu Lys Leu Leu Pro Leu Phe Asp Lys Ile	340	345	350
Asn Leu Gln Gln Gly Arg His Phe Ile Val Leu His Gln Arg Gly Ser	355	360	365
His Ala Pro Tyr Gly Ala Leu Leu Gln Pro Gln Asp Lys Val Phe Gly	370	375	380
Glu Ala Asp Ile Val Asp Lys Tyr Asp Asn Thr Ile His Lys Thr Asp	385	390	395
Gln Met Ile Gln Thr Val Phe Glu Gln Leu Gln Lys Gln Pro Asp Gly	405	410	415
Asn Trp Leu Phe Ala Tyr Thr Ser Asp His Gly Gln Tyr Val Arg Gln	420	425	430
Asp Ile Tyr Asn Gln Gly Thr Val Gln Pro Asp Ser Tyr Ile Val Pro	435	440	445
Leu Val Leu Tyr Ser Pro Asp Lys Ala Val Gln Gln Ala Ala Asn Gln	450	455	460
Ala Phe Ala Pro Cys Glu Ile Ala Phe His Gln Gln Leu Ser Thr Phe	465	470	475
			480

Leu Ile His Thr Leu Gly Tyr Asp Met Pro Val Ser Gly Cys Arg Glu
485 490 495

Gly Ser Val Thr Gly Asn Leu Ile Thr Gly Asp Ala Gly Ser Leu Asn
500 505 510

Ile Arg Asn Gly Lys Ala Glu Tyr Val Tyr Pro Gln
515 520

<210> 311
<211> 590
<212> DNA
<213> Neisseria meningitidis

<400> 311
accctgctcc tcttcateccc cctcgctcctc acacgtgctgg cacactgacc ggcataactcg 60
cccacggcgg cggcaaaccgc ttgcccgtcg aacaagaact cgtcgccgca tcgtcccgcg 120
ccgcccgtcaa agaaatggat ttgtccgccc taaaaggacg caaagccgcc ytttacgtct 180
ccgttatggg cgaccaagggt tcgggcaaca taagcggcgg acgctactct atcgacgcac 240
tgatacgagg cggctaccac aacaaccccg aaagtgccac ccaatacagc taccgcgcct 300
acgacactac cgccaccacc aaatccgacg cgtctctccag cgtaaccact tccacatcgc 360
ttttgaacgc ccccgccgcc gycytgacga aaaacagcgg acgcaaaggc gaacgctccg 420
ccggactgtc cgtcaacggc acgggcgact accgcaacga aaccctgctc gcccaaccccc 480
gcgacgtttc cttcctgacc aacctcatcc aaaccgtctt ctacctgcgc ggcacggaag 540
tcgtaccgcc cgratacgcc gacaccgacg tattcgtaac cgtcgacgta 590

<210> 312
<211> 197
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (12)..(12)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (58)..(58)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (128)..(128)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (185)..(185)
<223> Xaa= any amino acid

<400> 312
Thr Leu Leu Leu Phe Ile Pro Leu Val Leu Thr Xaa Cys Gly Thr Leu
1 5 10 15

Thr Gly Ile Leu Ala His Gly Gly Gly Lys Arg Phe Ala Val Glu Gln

20

25

30

Glu Leu Val Ala Ala Ser Ser Arg Ala Ala Val Lys Glu Met Asp Leu
35 40 45

Ser Ala Leu Lys Gly Arg Lys Ala Ala Xaa Tyr Val Ser Val Met Gly
50 55 60

Asp Gln Gly Ser Gly Asn Ile Ser Gly Gly Arg Tyr Ser Ile Asp Ala
65 70 75 80

Leu Ile Arg Gly Gly Tyr His Asn Asn Pro Glu Ser Ala Thr Gln Tyr
85 90 95

Ser Tyr Pro Ala Tyr Asp Thr Thr Ala Thr Thr Lys Ser Asp Ala Leu
100 105 110

Ser Ser Val Thr Thr Ser Thr Ser Leu Leu Asn Ala Pro Ala Ala Xaa
115 120 125

Leu Thr Lys Asn Ser Gly Arg Lys Gly Glu Arg Ser Ala Gly Leu Ser
130 135 140

Val Asn Gly Thr Gly Asp Tyr Arg Asn Glu Thr Leu Leu Ala Asn Pro
145 150 155 160

Arg Asp Val Ser Phe Leu Thr Asn Leu Ile Gln Thr Val Phe Tyr Leu
165 170 175

Arg Gly Ile Glu Val Val Pro Pro Xaa Tyr Ala Asp Thr Asp Val Phe
180 185 190

Val Thr Val Asp Val
195

<210> 313
<211> 942
<212> DNA
<213> Neisseria meningitidis

<400> 313
atgaaaaccc tgctcctcct catccccctc gtcctcacag cctgcggcac actgaccggc 60
ataccgccc acggcgggcg caaacgcttt gccgtcgaac aagaactcgt cgccgcatcg 120
tcccgcgccc cgtcaaaga aatggatttg tccgccctaa agggacgcaa agccgcccctt 180
tacgtctccg ttatggggcg ccaagggttcg ggcaacataa gcggcggacg ctactctatc 240
gacgcactga tacgcggcgg ctaccacaac aaccccgaaa gtgccacca atacagctac 300
ccgcctacg acactaccgc caccacaaa tccgacgcgc tctccagcgt aaccacttcc 360
acatcgcttt tgaacgcccc cgccgcccgc ctgacgaaaa acagcggacg caaaggcgaa 420
cgctccgccc gactgtccgt caacggcacg ggcgactacc gcaacgaaac cctgctcgcc 480
aacccccgcg acgtttcctt cctgaccaac ctcatccaaa ccgtcttcta cctgcgcggc 540
atcgaagtcg taccgcccga atacgcccgc accgacgtat tcgtaaccgt cgacgtattc 600
ggcaccgtcc gcagccgtac cgaactgcac ctctacaacg ccgaaaccct taaagcccaa 660
accaagctcg aatatttcgc cgttgaccgc gacagccgga aactgctgat taccctctaaa 720
accgccgctt acgaatccca ataccaagaa caatacgccc tttggaccgg cccttacaaa 780
gtcagcaaaa ccgtcaaagc ctgacaccgc ctgatggtcg atttctccga cattaccccc 840
tacggcgaca caaccgccc aaaccgtccc gacttcaaac aaaacaacgg taaaaaaccc 900

gatgtcggca acgaagtcac ccgccgccgc aaaggaggat aa

942

<210> 314

<211> 313

<212> PRT

<213> Neisseria meningitidis

<400> 314

Met	Lys	Thr	Leu	Leu	Leu	Ile	Pro	Leu	Val	Leu	Thr	Ala	Cys	Gly	
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Thr	Leu	Thr	Gly	Ile	Pro	Ala	His	Gly	Gly	Gly	Lys	Arg	Phe	Ala	Val
			20				25					30			
Glu	Gln	Glu	Leu	Val	Ala	Ala	Ser	Ser	Arg	Ala	Ala	Val	Lys	Glu	Met
		35					40					45			
Asp	Leu	Ser	Ala	Leu	Lys	Gly	Arg	Lys	Ala	Ala	Leu	Tyr	Val	Ser	Val
	50					55					60				
Met	Gly	Asp	Gln	Gly	Ser	Gly	Asn	Ile	Ser	Gly	Gly	Arg	Tyr	Ser	Ile
65					70					75					80
Asp	Ala	Leu	Ile	Arg	Gly	Gly	Tyr	His	Asn	Asn	Pro	Glu	Ser	Ala	Thr
			85						90					95	
Gln	Tyr	Ser	Tyr	Pro	Ala	Tyr	Asp	Thr	Thr	Ala	Thr	Thr	Lys	Ser	Asp
			100					105					110		
Ala	Leu	Ser	Ser	Val	Thr	Thr	Ser	Thr	Ser	Leu	Leu	Asn	Ala	Pro	Ala
		115					120					125			
Ala	Ala	Leu	Thr	Lys	Asn	Ser	Gly	Arg	Lys	Gly	Glu	Arg	Ser	Ala	Gly
	130						135				140				
Leu	Ser	Val	Asn	Gly	Thr	Gly	Asp	Tyr	Arg	Asn	Glu	Thr	Leu	Leu	Ala
145					150					155					160
Asn	Pro	Arg	Asp	Val	Ser	Phe	Leu	Thr	Asn	Leu	Ile	Gln	Thr	Val	Phe
			165					170					175		
Tyr	Leu	Arg	Gly	Ile	Glu	Val	Val	Pro	Pro	Glu	Tyr	Ala	Asp	Thr	Asp
			180					185					190		
Val	Phe	Val	Thr	Val	Asp	Val	Phe	Gly	Thr	Val	Arg	Ser	Arg	Thr	Glu
		195					200					205			
Leu	His	Leu	Tyr	Asn	Ala	Glu	Thr	Leu	Lys	Ala	Gln	Thr	Lys	Leu	Glu
	210					215					220				
Tyr	Phe	Ala	Val	Asp	Arg	Asp	Ser	Arg	Lys	Leu	Leu	Ile	Thr	Pro	Lys
225					230					235				240	
Thr	Ala	Ala	Tyr	Glu	Ser	Gln	Tyr	Gln	Glu	Gln	Tyr	Ala	Leu	Trp	Thr
			245					250						255	

Gly Pro Tyr Lys Val Ser Lys Thr Val Lys Ala Ser Asp Arg Leu Met
 260 265 270

Val Asp Phe Ser Asp Ile Thr Pro Tyr Gly Asp Thr Thr Ala Gln Asn
 275 280 285

Arg Pro Asp Phe Lys Gln Asn Asn Gly Lys Lys Pro Asp Val Gly Asn
 290 295 300

Glu Val Ile Arg Arg Arg Lys Gly Gly
 305 310

<210> 315
 <211> 942
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (16)..(16)
 <223> N= Unknown

<400> 315
 atgaaaaccc tgctcntcct catccccctc gtccctcacag cctgcggcac actgaccggc 60
 ataccgccc acggcgggcg caaacgcttt gccgtcgaac aagaactcgt cgccgcatcg 120
 tcccgcgccg ccgtcaaaga aatggacttg tccgccctga aaggacgcaa agccgcccctt 180
 tacgtctccg ttatggggcga ccaagggttcg ggcaacataa gcggcgggacg ctactctatc 240
 gacgcactga tacgcggcggt ctaccacaac aaccccgaaa gtgccacca atacagctac 300
 cccgcctacg acactaccgc caccaccaa tccgacgcgc tctccagcgt aaccacttcc 360
 acatcgcttt tgaacgcccc cgccgcgcgc ctgacgaaaa acagcggacg caaaggcgaa 420
 cgctccgccc gactgtccgt caacggcacg ggcgactacc gcaacgaaac cctgctcgcc 480
 aacccccgcg acgtttcctt cctgaccaac ctcatccaaa ccgtcttcta cctgcgcggc 540
 atcgaagtgc taccgcccga atacgcccgc accgacgtat tcgtaaccgt cgacgtattc 600
 ggcaccgtcc gcagccgcac cgaactgcac ctctacaacg ccgaaaccct taaagcccaa 660
 accaagctcg aatatttcgc cgttgaccgc gacagccgga aactgctgat tgcccctaaa 720
 accgcccgcct acgaatccca ataccaagaa caatacgccc tctggatggg accttacagc 780
 gtcggcaaaa ccgtcaaagc ctcagaccgc ctgatggtcg atttctccga catcaccccc 840
 tacggcgaca caaccgccc aaaccgtccc gacttcaaac aaaacaacgg taaaaaacc 900
 gatgtcggca acgaagtcac ccgcccgcgc aaaggaggat aa 942

<210> 316
 <211> 313
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> Xaa= any amino acid

<400> 316
 Met Lys Thr Leu Leu Xaa Leu Ile Pro Leu Val Leu Thr Ala Cys Gly
 1 5 10 15
 Thr Leu Thr Gly Ile Pro Ala His Gly Gly Gly Lys Arg Phe Ala Val
 20 25 30

Glu	Gln	Glu	Leu	Val	Ala	Ala	Ser	Ser	Arg	Ala	Ala	Val	Lys	Glu	Met	35	40	45
Asp	Leu	Ser	Ala	Leu	Lys	Gly	Arg	Lys	Ala	Ala	Leu	Tyr	Val	Ser	Val	50	55	60
Met	Gly	Asp	Gln	Gly	Ser	Gly	Asn	Ile	Ser	Gly	Gly	Arg	Tyr	Ser	Ile	65	70	75
Asp	Ala	Leu	Ile	Arg	Gly	Gly	Tyr	His	Asn	Asn	Pro	Glu	Ser	Ala	Thr	85	90	95
Gln	Tyr	Ser	Tyr	Pro	Ala	Tyr	Asp	Thr	Thr	Ala	Thr	Thr	Lys	Ser	Asp	100	105	110
Ala	Leu	Ser	Ser	Val	Thr	Thr	Ser	Thr	Ser	Leu	Leu	Asn	Ala	Pro	Ala	115	120	125
Ala	Ala	Leu	Thr	Lys	Asn	Ser	Gly	Arg	Lys	Gly	Glu	Arg	Ser	Ala	Gly	130	135	140
Leu	Ser	Val	Asn	Gly	Thr	Gly	Asp	Tyr	Arg	Asn	Glu	Thr	Leu	Leu	Ala	145	150	155
Asn	Pro	Arg	Asp	Val	Ser	Phe	Leu	Thr	Asn	Leu	Ile	Gln	Thr	Val	Phe	165	170	175
Tyr	Leu	Arg	Gly	Ile	Glu	Val	Val	Pro	Pro	Glu	Tyr	Ala	Asp	Thr	Asp	180	185	190
Val	Phe	Val	Thr	Val	Asp	Val	Phe	Gly	Thr	Val	Arg	Ser	Arg	Thr	Glu	195	200	205
Leu	His	Leu	Tyr	Asn	Ala	Glu	Thr	Leu	Lys	Ala	Gln	Thr	Lys	Leu	Glu	210	215	220
Tyr	Phe	Ala	Val	Asp	Arg	Asp	Ser	Arg	Lys	Leu	Leu	Ile	Ala	Pro	Lys	225	230	235
Thr	Ala	Ala	Tyr	Glu	Ser	Gln	Tyr	Gln	Glu	Gln	Tyr	Ala	Leu	Trp	Met	245	250	255
Gly	Pro	Tyr	Ser	Val	Gly	Lys	Thr	Val	Lys	Ala	Ser	Asp	Arg	Leu	Met	260	265	270
Val	Asp	Phe	Ser	Asp	Ile	Thr	Pro	Tyr	Gly	Asp	Thr	Thr	Ala	Gln	Asn	275	280	285
Arg	Pro	Asp	Phe	Lys	Gln	Asn	Asn	Gly	Lys	Lys	Pro	Asp	Val	Gly	Asn	290	295	300
Glu	Val	Ile	Arg	Arg	Arg	Lys	Gly	Gly								305	310	

<210> 317

<211> 942

<212> DNA
 <213> Neisseria gonorrhoeae

<400> 317
 atgaaaaccc tgctcctcct catccccctc gtactcacgc cctgcggcac actgaccggc 60
 ataccgcccc acggcgggcg caaacgcttt gccgtcgaac aggaactcgt cgccgcatcg 120
 tcccgcgccg ccgtcaaaga aatggacttg tccgcctga aaggacgcaa agccgcccctt 180
 tacgtctccg ttatgggcga ccaagggtcg ggcaacataa gcggcggacg ctactccatc 240
 gacgactga tacgcggcggt ctaccacaac aaccccgaca gcgccaccgc atacagctac 300
 cccgcctatg acaactaccgc caccacaaaa tccgacgcgc tctccggcgt aaccacttcc 360
 acatcgcttt tgaacgcccc cgccgcccgc ctgacgaaaa acaacggacg caaaggcgaa 420
 cgctccgccc gactgtccgt caacggcacg ggcgactacc gcaacgaaac cctgctcgcc 480
 aacccccgcg acgtttccct cctgaccaac ctcatccaaa ccgtcttcta cctgcgcggc 540
 atcgaagtcg taccgcccga atacgcccgc accgacgtat tcgtaaccgt cgacgtattc 600
 ggcaccgtcc gcagccgtac cgaactgcac ctctacaacg ccgaaaccct taaagcccaa 660
 accaagtcg aatatttcgc cgtcgaccgc gacagccgga aactgctgat tgcccctaaa 720
 accgcccgtc acgaatccca ataccaagaa caatagccc tctggatggg accttacagc 780
 gtcggcaaaa ccgtcaaagc ctcagaccgc ctgatggtcg atttctccga catcaccccc 840
 tacggcgaca caaccgcccc aaaccgtccc gacttcaaac aaaacaacgg taaaaacccc 900
 gatgtcggca acgaagtcac ccgcccgcgc aaaggaggat aa 942

<210> 318
 <211> 313
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 318
 Met Lys Thr Leu Leu Leu Ile Pro Leu Val Leu Thr Ala Cys Gly
 1 5 10 15
 Thr Leu Thr Gly Ile Pro Ala His Gly Gly Gly Lys Arg Phe Ala Val
 20 25 30
 Glu Gln Glu Leu Val Ala Ala Ser Ser Arg Ala Ala Val Lys Glu Met
 35 40 45
 Asp Leu Ser Ala Leu Lys Gly Arg Lys Ala Ala Leu Tyr Val Ser Val
 50 55 60
 Met Gly Asp Gln Gly Ser Gly Asn Ile Ser Gly Gly Arg Tyr Ser Ile
 65 70 75 80
 Asp Ala Leu Ile Arg Gly Gly Tyr His Asn Asn Pro Asp Ser Ala Thr
 85 90 95
 Arg Tyr Ser Tyr Pro Ala Tyr Asp Thr Thr Ala Thr Thr Lys Ser Asp
 100 105 110
 Ala Leu Ser Gly Val Thr Thr Ser Thr Ser Leu Leu Asn Ala Pro Ala
 115 120 125
 Ala Ala Leu Thr Lys Asn Asn Gly Arg Lys Gly Glu Arg Ser Ala Gly
 130 135 140
 Leu Ser Val Asn Gly Thr Gly Asp Tyr Arg Asn Glu Thr Leu Leu Ala
 145 150 155 160

Asn Pro Arg Asp Val Ser Phe Leu Thr Asn Leu Ile Gln Thr Val Phe
 165 170 175
 Tyr Leu Arg Gly Ile Glu Val Val Pro Pro Glu Tyr Ala Asp Thr Asp
 180 185 190
 Val Phe Val Thr Val Asp Val Phe Gly Thr Val Arg Ser Arg Thr Glu
 195 200 205
 Leu His Leu Tyr Asn Ala Glu Thr Leu Lys Ala Gln Thr Lys Leu Glu
 210 215 220
 Tyr Phe Ala Val Asp Arg Asp Ser Arg Lys Leu Leu Ile Ala Pro Lys
 225 230 235 240
 Thr Ala Ala Tyr Glu Ser Gln Tyr Gln Glu Gln Tyr Ala Leu Trp Met
 245 250 255
 Gly Pro Tyr Ser Val Gly Lys Thr Val Lys Ala Ser Asp Arg Leu Met
 260 265 270
 Val Asp Phe Ser Asp Ile Thr Pro Tyr Gly Asp Thr Thr Ala Gln Asn
 275 280 285
 Arg Pro Asp Phe Lys Gln Asn Asn Gly Lys Asn Pro Asp Val Gly Asn
 290 295 300
 Glu Val Ile Arg Arg Arg Lys Gly Gly
 305 310

<210> 319
 <211> 1191
 <212> DNA
 <213> Neisseria meningitidis

<400> 319
 atggcagaga tctgtttgat aaccggcagc cccggttcag ggaaaacatt aaaaatgggt 60
 tccatgatgg cgaatgatga aatgtttaag cctgatgaaa aagccatacg ccgtaaagta 120
 ttaccgaaca taaaaggctt gaaaataccg cacacctaca tagaaacgga cgcaaaaaag 180
 ctgccgaaat cgacagatga gcagctttcg gcgcatgata tgtacgaatg gataaagaag 240
 cccgaaaata tcgggtctat tgtcattgta gatgaagctc aagacgtatg gccggcacgc 300
 tcggcaggtt caaaaatccc tgaaaatgtc caatggctga atacgcacag acatcagggc 360
 attgatatat ttgttttgac tcaaggtcct aagcttctag atcaaaatct tagaacgctt 420
 gtacggaaac attaccacat cgcttcaaac aagatgggta tgcgtacgct tttagaatgg 480
 aaaatatgcg cggacgatcc cgtaaaaatg gcatcaagcg cattctccag tatctataca 540
 ctggataaaa aagtttatga cttgtaysrr tmmgcggaag ttcataccgt aaataaggtc 600
 aagcgggtcaa agtggtttta cactctgcca gtaatatgat tgctgattcc cgtgtttgtc 660
 ggctgtcct ataaaatggt gagcagttac ggaaaaaac aggaagaacc cgcagcaca 720
 gaatcggcgg caacagaaca gcaggcagta ttcccgata aaacagaagg cgagccggta 780
 aataacggca accttaccgc agatatgttt gttccgacat tgtccgaaaa acccggaagc 840
 aagccgattt ataacggtgt aaggcaggta agaacctttg aatatatagc aggtgtata 900
 gaaggcggaa gaaccggatg cgctgtctat tcgcatcaag ggacggcatt gaaagaagtg 960
 acggagttga tgtgccaaag actatgtaaa aaacggcttg ccgtttaacc catacaaaga 1020
 agaaagccaa gggcaggaag ttcagcaaaag cgcgagcaa cattcggaca gggcgccaag 1080
 ttgccacatt gggcggaaaa ccgtagcaga acctaatgta cgataattgg gaagaacgcg 1140
 ggaaaccgtt tgaaggaatc ggacgggggc gtggtcggat cggcaaactg a 1191

<210> 320
 <211> 395
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (190)..(191)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (279)..(279)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (368)..(368)
 <223> Xaa= any amino acid

<400> 320
 Met Ala Glu Ile Cys Leu Ile Thr Gly Thr Pro Gly Ser Gly Lys Thr
 1 5 10 15
 Leu Lys Met Val Ser Met Met Ala Asn Asp Glu Met Phe Lys Pro Asp
 20 25 30
 Glu Lys Ala Ile Arg Arg Lys Val Phe Thr Asn Ile Lys Gly Leu Lys
 35 40 45
 Ile Pro His Thr Tyr Ile Glu Thr Asp Ala Lys Lys Leu Pro Lys Ser
 50 55 60
 Thr Asp Glu Gln Leu Ser Ala His Asp Met Tyr Glu Trp Ile Lys Lys
 65 70 75 80
 Pro Glu Asn Ile Gly Ser Ile Val Ile Val Asp Glu Ala Gln Asp Val
 85 90 95
 Trp Pro Ala Arg Ser Ala Gly Ser Lys Ile Pro Glu Asn Val Gln Trp
 100 105 110
 Leu Asn Thr His Arg His Gln Gly Ile Asp Ile Phe Val Leu Thr Gln
 115 120 125
 Gly Pro Lys Leu Leu Asp Gln Asn Leu Arg Thr Leu Val Arg Lys His
 130 135 140
 Tyr His Ile Ala Ser Asn Lys Met Gly Met Arg Thr Leu Leu Glu Trp
 145 150 155 160
 Lys Ile Cys Ala Asp Asp Pro Val Lys Met Ala Ser Ser Ala Phe Ser
 165 170 175
 Ser Ile Tyr Thr Leu Asp Lys Lys Val Tyr Asp Leu Tyr Xaa Xaa Ala
 180 185 190

Glu Val His Thr Val Asn Lys Val Lys Arg Ser Lys Trp Phe Tyr Thr
 195 200 205
 Leu Pro Val Ile Val Leu Leu Ile Pro Val Phe Val Gly Leu Ser Tyr
 210 215 220
 Lys Met Leu Ser Ser Tyr Gly Lys Lys Gln Glu Glu Pro Ala Ala Gln
 225 230 235 240
 Glu Ser Ala Ala Thr Glu Gln Gln Ala Val Leu Pro Asp Lys Thr Glu
 245 250 255
 Gly Glu Pro Val Asn Asn Gly Asn Leu Thr Ala Asp Met Phe Val Pro
 260 265 270
 Thr Leu Ser Glu Lys Pro Xaa Ser Lys Pro Ile Tyr Asn Gly Val Arg
 275 280 285
 Gln Val Arg Thr Phe Glu Tyr Ile Ala Gly Cys Ile Glu Gly Gly Arg
 290 295 300
 Thr Gly Cys Ala Cys Tyr Ser His Gln Gly Thr Ala Leu Lys Glu Val
 305 310 315 320
 Thr Glu Leu Met Cys Lys Asp Tyr Val Lys Asn Gly Leu Pro Phe Asn
 325 330 335
 Pro Tyr Lys Glu Glu Ser Gln Gly Gln Glu Val Gln Gln Ser Ala Gln
 340 345 350
 Gln His Ser Asp Arg Ala Gln Val Ala Thr Leu Gly Gly Lys Pro Xaa
 355 360 365
 Gln Asn Leu Met Tyr Asp Asn Trp Glu Glu Arg Gly Lys Pro Phe Glu
 370 375 380
 Gly Ile Gly Gly Gly Val Val Gly Ser Ala Asn
 385 390 395

<210> 321
 <211> 1188
 <212> DNA
 <213> Neisseria meningitidis

<400> 321
 atggcagaga tctgtttgat aaccggcacg cccggttcag ggaaaacatt aaaaatgggt 60
 tccatgatgg cgaatgatga aatgtttaag cctgatgaaa acggcatagc ccgttaaagta 120
 tttacgaaca taaaaggctt gaaaataccg cacacctaca tagaaacgga cgcaaaaaag 180
 ctgccgaaat cgacagatga gcagctttcg gcgcatgata tgtacgaatg gataaagaag 240
 cccgaaaata tcgggtctat tgtcattgta gatgaagctc aagacgtatg gccggcacgc 300
 tcggcagggt caaaaatccc tgaaaatgtc caatggctga atacgcacag acatcagggc 360
 attgatatat ttgttttgac tcaaggtcct aagcttctag atcaaaatct tagaacgctt 420
 gtacggaaac attaccacat cgcttcaaac aagatgggta tgcgtacgct tttagaatgg 480
 aaaatatgcg cggacgatcc cgtaaaaatg gcatcaagcg cattctccag tatctataca 540
 ctggataaaa aagtttatga cttgtacgaa tcagcggaag ttcataccgt aaataaggtc 600
 aagcgggtcaa agtgggttta cactctgcc a gtaatagat tgctgattcc cgtgtttgtc 660

ggcctgtcct	ataaaatggt	gagcagttac	ggaaaaaaac	aggaagaacc	cgcagcacaa	720
gaatcggcgg	caacagaaca	gcaggcagta	cttccggata	aaacagaagg	cgagccggta	780
aataacggca	accttaccgc	agatatgttt	gttccgacat	tgtccgaaaa	acccgaaagc	840
aagccgattt	ataacggtgt	aaggcaggta	agaacctttg	aatatatagc	aggctgtata	900
gaaggcggaa	gaaccggatg	cgcttgctat	tcgcatcaag	ggacggcatt	gaaagaagtg	960
acggagttga	tgtgcaagga	ctatgtaaaa	aacggccttg	cgtttaaccc	atacaaagaa	1020
gaaagccaag	ggcaggaagt	tcagcaaagc	gcgcagcaac	attcggacag	ggcgcaagtt	1080
gccacattgg	gcggaaaacc	gtagcagaac	ctaattgtac	ataattggga	agaacgcggg	1140
aaaccgtttg	aaggaatcgg	cgggggctg	gtcggatcgg	caaactga		1188

<210> 322
 <211> 394
 <212> PRT
 <213> Neisseria meningitidis

<400> 322

Met	Ala	Glu	Ile	Cys	Leu	Ile	Thr	Gly	Thr	Pro	Gly	Ser	Gly	Lys	Thr
1				5					10					15	
Leu	Lys	Met	Val	Ser	Met	Met	Ala	Asn	Asp	Glu	Met	Phe	Lys	Pro	Asp
			20					25					30		
Glu	Asn	Gly	Ile	Arg	Arg	Lys	Val	Phe	Thr	Asn	Ile	Lys	Gly	Leu	Lys
		35					40					45			
Ile	Pro	His	Thr	Tyr	Ile	Glu	Thr	Asp	Ala	Lys	Lys	Leu	Pro	Lys	Ser
	50					55					60				
Thr	Asp	Glu	Gln	Leu	Ser	Ala	His	Asp	Met	Tyr	Glu	Trp	Ile	Lys	Lys
65					70					75					80
Pro	Glu	Asn	Ile	Gly	Ser	Ile	Val	Ile	Val	Asp	Glu	Ala	Gln	Asp	Val
			85						90					95	
Trp	Pro	Ala	Arg	Ser	Ala	Gly	Ser	Lys	Ile	Pro	Glu	Asn	Val	Gln	Trp
		100						105					110		
Leu	Asn	Thr	His	Arg	His	Gln	Gly	Ile	Asp	Ile	Phe	Val	Leu	Thr	Gln
	115						120					125			
Gly	Pro	Lys	Leu	Leu	Asp	Gln	Asn	Leu	Arg	Thr	Leu	Val	Arg	Lys	His
	130					135					140				
Tyr	His	Ile	Ala	Ser	Asn	Lys	Met	Gly	Met	Arg	Thr	Leu	Leu	Glu	Trp
145					150				155					160	
Lys	Ile	Cys	Ala	Asp	Asp	Pro	Val	Lys	Met	Ala	Ser	Ser	Ala	Phe	Ser
			165						170					175	
Ser	Ile	Tyr	Thr	Leu	Asp	Lys	Lys	Val	Tyr	Asp	Leu	Tyr	Glu	Ser	Ala
	180						185						190		
Glu	Val	His	Thr	Val	Asn	Lys	Val	Lys	Arg	Ser	Lys	Trp	Phe	Tyr	Thr
	195						200					205			
Leu	Pro	Val	Ile	Val	Leu	Leu	Ile	Pro	Val	Phe	Val	Gly	Leu	Ser	Tyr

210	215	220
Lys Met Leu Ser Ser Tyr Gly Lys Lys Gln Glu Glu Pro Ala Ala Gln		
225	230	235 240
Glu Ser Ala Ala Thr Glu Gln Gln Ala Val Leu Pro Asp Lys Thr Glu		
	245	250 255
Gly Glu Pro Val Asn Asn Gly Asn Leu Thr Ala Asp Met Phe Val Pro		
	260	265 270
Thr Leu Ser Glu Lys Pro Glu Ser Lys Pro Ile Tyr Asn Gly Val Arg		
	275	280 285
Gln Val Arg Thr Phe Glu Tyr Ile Ala Gly Cys Ile Glu Gly Gly Arg		
	290	295 300
Thr Gly Cys Ala Cys Tyr Ser His Gln Gly Thr Ala Leu Lys Glu Val		
	305	310 315 320
Thr Glu Leu Met Cys Lys Asp Tyr Val Lys Asn Gly Leu Pro Phe Asn		
	325	330 335
Pro Tyr Lys Glu Glu Ser Gln Gly Gln Glu Val Gln Gln Ser Ala Gln		
	340	345 350
Gln His Ser Asp Arg Ala Gln Val Ala Thr Leu Gly Gly Lys Pro Gln		
	355	360 365
Asn Leu Met Tyr Asp Asn Trp Glu Glu Arg Gly Lys Pro Phe Glu Gly		
	370	375 380
Ile Gly Gly Gly Val Val Gly Ser Ala Asn		
385	390	

<210> 323
 <211> 1188
 <212> DNA
 <213> Neisseria meningitidis

<400> 323					
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tttacgaaca	tcaaaggctt	gaagataccg	cacacctaca	tagaaacgga	cgcgaaaaag 180
ctgccgaaat	cgacagatga	gcagctttcg	gcgcatgata	tgtacgaatg	gataaagaag 240
cccgaaaata	tcgggtctat	tgtcattgta	gatgaagctc	aagacgtatg	gccggcacgc 300
tcggcaggtt	caaaaatccc	tgaaaatgtc	caatggctga	atacgcacag	acatcagggc 360
attgatatat	ttgttttgac	tcaaggctct	aagcttctag	atcaaaatct	tagaacgctt 420
gtacggaaac	attaccacat	cgcttcaaac	aagatgggta	tgcgtacgct	tttagaatgg 480
aaaatatgcy	cggacgatcc	cgtaaaaatg	gcatcaagcg	cattctccag	tatctataca 540
ctggataaaa	aagtttatga	cttgtagcaa	tcagcgggaag	ttcataccgt	aaataagggtc 600
aagcgggtcaa	aatggtttta	tactctgcc	gtaataatat	tgctgattcc	cgttttttgtc 660
ggcctgtcct	ataaaatggt	aagtagttat	ggaaaaaac	aggaagaacc	cgcagcacaa 720
gaatcggcgg	caacagaaca	tcaggcagta	tttcaggata	aaacagaagg	cgagccggta 780
aacaacggta	accttaccgc	agatatgttt	gttccgacat	tgtccgaaaa	acccgaaagc 840
aagccgattt	ataacggtgt	aaggcaggtg	agaacctttg	aatatatagc	aggctgtgta 900

gaaggcggaa	gaaccggatg	cacatgctat	tcgcatcaag	ggacggcatt	gaaagaaatt	960
acaaagggaaa	tgtgcaagga	ttacgcaaga	aacggattgc	cgtttaaccc	atataaagaa	1020
gaaagccaag	ggcgggatgt	ccagcaaagt	gagcagcacc	attcggacag	accgcaagtt	1080
gccacgttgg	gcggaaagcc	gtggcaaaat	cttatgtatg	ataattggca	ggagcgcgga	1140
aaaccgtttg	aaggaatcgg	cgggggcgtg	gtcggatcgg	caaactga		1188

<210> 324
 <211> 395
 <212> PRT
 <213> Neisseria meningitidis

<400> 324

Met	Ala	Glu	Ile	Cys	Leu	Ile	Thr	Gly	Thr	Pro	Gly	Ser	Gly	Lys	Thr	
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Leu	Lys	Met	Val	Ser	Met	Met	Ala	Asn	Asp	Glu	Met	Phe	Lys	Pro	Asp	
			20					25					30			
Glu	Asn	Gly	Ile	Arg	Arg	Lys	Val	Phe	Thr	Asn	Ile	Lys	Gly	Leu	Lys	
		35					40					45				
Ile	Pro	His	Thr	Tyr	Ile	Glu	Thr	Asp	Ala	Lys	Lys	Leu	Pro	Lys	Ser	
	50					55					60					
Thr	Asp	Glu	Gln	Leu	Ser	Ala	His	Asp	Met	Tyr	Glu	Trp	Ile	Lys	Lys	
65					70				75					80		
Pro	Glu	Asn	Ile	Gly	Ser	Ile	Val	Ile	Val	Asp	Glu	Ala	Gln	Asp	Val	
			85					90						95		
Trp	Pro	Ala	Arg	Ser	Ala	Gly	Ser	Lys	Ile	Pro	Glu	Asn	Val	Gln	Trp	
		100						105					110			
Leu	Asn	Thr	His	Arg	His	Gln	Gly	Ile	Asp	Ile	Phe	Val	Leu	Thr	Gln	
		115					120					125				
Gly	Ser	Lys	Leu	Leu	Asp	Gln	Asn	Leu	Arg	Thr	Leu	Val	Arg	Lys	His	
	130					135					140					
Tyr	His	Ile	Ala	Ser	Asn	Lys	Met	Gly	Met	Arg	Thr	Leu	Leu	Glu	Trp	
145					150				155					160		
Lys	Ile	Cys	Ala	Asp	Asp	Pro	Val	Lys	Met	Ala	Ser	Ser	Ala	Phe	Ser	
			165						170					175		
Ser	Ile	Tyr	Thr	Leu	Asp	Lys	Lys	Val	Tyr	Asp	Leu	Tyr	Glu	Ser	Ala	
		180						185					190			
Glu	Val	His	Thr	Val	Asn	Lys	Val	Lys	Arg	Ser	Lys	Trp	Phe	Tyr	Thr	
		195					200					205				
Leu	Pro	Val	Ile	Ile	Leu	Leu	Ile	Pro	Val	Phe	Val	Gly	Leu	Ser	Tyr	
	210					215					220					
Lys	Met	Leu	Ser	Ser	Tyr	Gly	Lys	Lys	Gln	Glu	Glu	Pro	Ala	Ala	Gln	
225					230				235					240		

<400>	325						
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tttacgaaca	tcaaaggttt	gaagataccg	cacacccaca	tagaaacaga	cgcaaagaag		180
ctgccgaaat	caaccgatga	acagcttttcg	gcgcatgata	tgtatgaatg	gatcaagaag		240
cctgaaaacg	tcggcgcaat	cgttattgtc	gatgaggcgc	aagacgtatg	gcccgcacgc		300
ctccgaggtt	cgaaaatccc	cgaaaacgtc	caatggctga	acacacacag	gcatacgggc		360
atagatatat	ttgtattgac	acaaggctct	aaactcttag	atcagaactt	gcgaacattg		420
gttaaaaagac	attaccacat	tgcggccaac	aaaatggggt	tgcgtaccct	gcttgaatgg		480
aaagtatgcg	cggatgaccc	ggtaaaaaatg	gcatacaagt	cattttccag	tatctacaca		540
ctggataaaaa	aagtttatga	cttgtagcaa	tccgcagaaa	ttcacacggt	aaacaaagtc		600
aagcgtttcaa	aatggtttta	tgcattgccc	gtcatcataat	tattgattcc	gctattttgtc		660
ggttttgtctt	acaaaatggt	ggcgagttac	ggaaaaaaac	aggaagaacc	gcagcacaaa		720
gaaatcggcgg	caacagaaaca	gcaggcagta	cttcgggata	aaacagaagg	agaatcggtg		780
aataacggaa	accttacggc	agatatgttt	gttcgcacat	tgcccgaaaa	accggaagc		840
aagccgattt	ataacggtgt	aaggcaggta	aggacctttg	aatatatagc	aggctgtata		900
gaaggcgga	gaaccggatg	cacctgctat	tgcatacaag	ggacggcatt	gaaagaagtg		960
acggagttga	tgtgcaagga	ctatgtaaaa	aacggcttgc	cgtttaaccc	atacaaagaa		1020
gaaaggccaag	ggcaggaagt	tcagcaaaagc	gcgcagcaac	attcggacag	ggcgcaagtt		1080
gccacctttgg	gcggaaaaacc	gcagcagaac	ctaatgtacg	acaattggga	agaacgcggg		1140
aaaccgtttg	aaggaatcgg	cgggggcgtg	gtcggatcgg	caaactga			1188

<210> 326
 <211> 395
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 326

Met	Ala	Glu	Ile	Cys	Leu	Ile	Thr	Gly	Thr	Pro	Gly	Ser	Gly	Lys	Thr
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Leu	Lys	Met	Val	Ser	Met	Met	Ala	Asn	Asp	Glu	Met	Phe	Lys	Pro	Asp
			20					25					30		
Glu	Asn	Gly	Val	Arg	Arg	Lys	Val	Phe	Thr	Asn	Ile	Lys	Gly	Leu	Lys
		35					40					45			
Ile	Pro	His	Thr	His	Ile	Glu	Thr	Asp	Ala	Lys	Lys	Leu	Pro	Lys	Ser
	50					55					60				
Thr	Asp	Glu	Gln	Leu	Ser	Ala	His	Asp	Met	Tyr	Glu	Trp	Ile	Lys	Lys
65					70					75					80
Pro	Glu	Asn	Val	Gly	Ala	Ile	Val	Ile	Val	Asp	Glu	Ala	Gln	Asp	Val
				85					90					95	
Trp	Pro	Ala	Arg	Ser	Ala	Gly	Ser	Lys	Ile	Pro	Glu	Asn	Val	Gln	Trp
		100						105					110		
Leu	Asn	Thr	His	Arg	His	Gln	Gly	Ile	Asp	Ile	Phe	Val	Leu	Thr	Gln
	115						120					125			
Gly	Pro	Lys	Leu	Leu	Asp	Gln	Asn	Leu	Arg	Thr	Leu	Val	Lys	Arg	His
	130					135					140				
Tyr	His	Ile	Ala	Ala	Asn	Lys	Met	Gly	Leu	Arg	Thr	Leu	Leu	Glu	Trp
145					150				155					160	
Lys	Val	Cys	Ala	Asp	Asp	Pro	Val	Lys	Met	Ala	Ser	Ser	Ala	Phe	Ser
				165					170					175	
Ser	Ile	Tyr	Thr	Leu	Asp	Lys	Lys	Val	Tyr	Asp	Leu	Tyr	Glu	Ser	Ala
		180						185					190		
Glu	Ile	His	Thr	Val	Asn	Lys	Val	Lys	Arg	Ser	Lys	Trp	Phe	Tyr	Ala
	195						200					205			
Leu	Pro	Val	Ile	Ile	Leu	Leu	Ile	Pro	Leu	Phe	Val	Gly	Leu	Ser	Tyr
	210					215						220			
Lys	Met	Leu	Gly	Ser	Tyr	Gly	Lys	Lys	Gln	Glu	Glu	Pro	Ala	Ala	Gln
225					230					235					240
Glu	Ser	Ala	Ala	Thr	Glu	Gln	Gln	Ala	Val	Leu	Pro	Asp	Lys	Thr	Glu
				245					250					255	
Gly	Glu	Ser	Val	Asn	Asn	Gly	Asn	Leu	Thr	Ala	Asp	Met	Phe	Val	Pro
			260				265						270		

Thr Leu Pro Glu Lys Pro Glu Ser Lys Pro Ile Tyr Asn Gly Val Arg
275 280 285

Gln Val Arg Thr Phe Glu Tyr Ile Ala Gly Cys Ile Glu Gly Gly Arg
290 295 300

Thr Gly Cys Thr Cys Tyr Ser His Gln Gly Thr Ala Leu Lys Glu Val
305 310 315 320

Thr Glu Leu Met Cys Lys Asp Tyr Val Lys Asn Gly Leu Pro Phe Asn
325 330 335

Pro Tyr Lys Glu Glu Ser Gln Gly Gln Glu Val Gln Gln Ser Ala Gln
340 345 350

Gln His Ser Asp Arg Ala Gln Val Ala Thr Leu Gly Gly Lys Pro Gln
355 360 365

Gln Asn Leu Met Tyr Asp Asn Trp Glu Glu Arg Gly Lys Pro Phe Glu
370 375 380

Gly Ile Gly Gly Gly Val Val Gly Ser Ala Asn
385 390 395

<210> 327

<211> 1091

<212> DNA

<213> Neisseria meningitidis

<400> 327

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attgaagtga	cggacaaggc	aaccgggtgag	aaactcgagc	gcaccatccg	cgtgaaccat	180
cctttgacct	tgcacggcat	cacgatttat	caggcgagtt	ttgccgacgg	cggttcggat	240
ttgacattca	aggcgtggaa	tttgggtgat	gcttcgcgcg	agcctgtcgt	gttgaaggca	300
acatccatac	accagtttcc	gttggaat	ggcaaacaca	aatatcgtct	tgagttcgat	360
cagttcactt	ctatgaatgt	ggaggacatg	agcgagggcg	cggaacggga	aaaaagcctg	420
aaatccacgc	tgccgatgt	ccgcgccgtt	actcaggaag	gtcacaaata	caccaattac	480
cgtatccgtg	atgcgccagg	ccaggcggtc	gaatataaaa	actatatgct	gccggttttg	540
caggaacagg	attatttttg	gattaccggc	acgcgcagcg	cttgcagcag	caataccgct	600
ggctgcgtat	ccccttgga	aagcagttga	aagcggacac	ctttatggca	ttgcgtgagt	660
ttttgaaaga	tggggaaggg	cgcaaacgtc	tgttgccgac	gcaaccaaag	gcgcacctgc	720
cgaaatccgc	gaacaattca	tgctggctgc	ggaaaacacg	ctgaacatct	ttgcacaaaa	780
aggctatttg	ggattggacg	aatttattac	gtccaatatc	ccgaaagagc	agcaggataa	840
gatgcagggc	tatttctacg	aaatgcttta	cggcgtgatg	aacgctgctt	tggatgaaac	900
catacccggg	acggcttgcc	cgaatggcag	caggatgaag	cgcggaatcg	tttctgctg	960
cacagtatgg	atgcgtacac	gggtttgacc	gaatatcccg	cgcctatgct	gctgcaactt	1020
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<210> 328

<211> 371

<212> PRT

<213> Neisseria meningitidis

<220>

<221> misc_feature
 <222> (160)..(165)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (200)..(200)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (237)..(237)
 <223> Xaa= any amino acid

<220>
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 <222> (308)..(308)
 <223> Xaa= any amino acid

<220>
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 <222> (364)..(364)
 <223> Xaa= any amino acid

<400> 328

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Phe	Glu	Val	Lys	Leu	Lys	Lys	Phe	His	Ile	Asp	Phe	Tyr	Asn	Thr	Gly
			20					25					30		
Met	Pro	Arg	Asp	Phe	Ala	Ser	Asp	Ile	Glu	Val	Thr	Asp	Lys	Ala	Thr
		35					40					45			
Gly	Glu	Lys	Leu	Glu	Arg	Thr	Ile	Arg	Val	Asn	His	Pro	Leu	Thr	Leu
	50					55					60				
His	Gly	Ile	Thr	Ile	Tyr	Gln	Ala	Ser	Phe	Ala	Asp	Gly	Gly	Ser	Asp
65					70				75						80
Leu	Thr	Phe	Lys	Ala	Trp	Asn	Leu	Gly	Asp	Ala	Ser	Arg	Glu	Pro	Val
			85					90						95	
Val	Leu	Lys	Ala	Thr	Ser	Ile	His	Gln	Phe	Pro	Leu	Glu	Ile	Gly	Lys
		100						105					110		
His	Lys	Tyr	Arg	Leu	Glu	Phe	Asp	Gln	Phe	Thr	Ser	Met	Asn	Val	Glu
		115					120					125			
Asp	Met	Ser	Glu	Gly	Ala	Glu	Arg	Glu	Lys	Ser	Leu	Lys	Ser	Thr	Leu
	130					135					140				
Pro	Asp	Val	Arg	Ala	Val	Thr	Gln	Glu	Gly	His	Lys	Tyr	Thr	Asn	Xaa
145					150					155					160
Xaa	Xaa	Xaa	Xaa	Xaa	Tyr	Arg	Ile	Arg	Asp	Ala	Pro	Gly	Gln	Ala	Val

165	170	175
Glu Tyr Lys Asn Tyr Met Leu Pro Val Leu Gln Glu Gln Asp Tyr Phe 180 185 190		
Trp Ile Thr Gly Thr Arg Ser Xaa Leu Gln Gln Gln Tyr Arg Trp Leu 195 200 205		
Arg Ile Pro Leu Asp Lys Gln Leu Lys Ala Asp Thr Phe Met Ala Leu 210 215 220		
Arg Glu Phe Leu Lys Asp Gly Glu Gly Arg Lys Arg Xaa Val Ala Asp 225 230 235 240		
Ala Thr Lys Gly Ala Pro Ala Glu Ile Arg Glu Gln Phe Met Leu Ala 245 250 255		
Ala Glu Asn Thr Leu Asn Ile Phe Ala Gln Lys Gly Tyr Leu Gly Leu 260 265 270		
Asp Glu Phe Ile Thr Ser Asn Ile Pro Lys Glu Gln Gln Asp Lys Met 275 280 285		
Gln Gly Tyr Phe Tyr Glu Met Leu Tyr Gly Val Met Asn Ala Ala Leu 290 295 300		
Asp Glu Thr Xaa Thr Arg Tyr Gly Leu Pro Glu Trp Gln Gln Asp Glu 305 310 315 320		
Ala Arg Asn Arg Phe Leu Leu His Ser Met Asp Ala Tyr Thr Gly Leu 325 330 335		
Thr Glu Tyr Pro Ala Pro Met Leu Leu Gln Leu Asp Gly Phe Ser Glu 340 345 350		
Val Arg Ser Ser Gly Leu Gln Met Thr Arg Ser Xaa Gly Pro Leu Leu 355 360 365		
Val Tyr Leu 370		

<210> 329
 <211> 2016
 <212> DNA
 <213> Neisseria meningitidis

<400> 329						
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cgcgaaat	ga	agtcct	ggaaaag	ctctgg	gatgcg	360
tcttcgct	gt	tggaat	gaggttg	aacgtt	ggaagt	420
ggttttca	agg	gaaaaa	taaccgt	gacggg	ttctgat	480
ggcacaa	tga	acaaat	ggtt	ctttga	catttg	540

ggcgggttga	tagacagtaa	cctgctgttg	aaactgggta	tgctgaccgg	tcggattggt	600
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aaggcgtgga	atTTTgggtga	tgcttcgcgc	gagcctgtcg	tgTTgaaggc	aacatccata	1020
caccagtttc	cgTTggaaat	tgGcaaacac	aaatatcgtc	ttgagttcga	tcagttcact	1080
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ccggtTTTgc	aggaacagga	ttatTTTtgg	attaccggca	cgcgagcgcg	cttgCagcag	1320
caataccgct	ggctgcgtat	ccccttggac	aagcagttga	aagcggacac	ctttatggca	1380
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TTTTatgtgc	gcgaaaaacg	ggcgtgggta	ttgTTTTcag	acggcaaaaat	ccgTTTTgcc	1920
atgtcttcgg	cccgcagcga	acgggatttg	cagaaggaat	ttccaaaaca	cgtcgagagt	1980
ctgcaacggc	tcggcaagga	cttgaatcat	gactga			2016

<210> 330

<211> 671

<212> PRT

<213> Neisseria meningitidis

<400> 330

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Ala	Phe	Phe	Ser	Ser	Met	Arg	Phe	Ala	Val	Ala	Leu	Leu	Ser	Leu	Leu	
			20					25					30			
Gly	Ile	Ala	Ser	Val	Ile	Gly	Thr	Val	Leu	Gln	Gln	Asn	Gln	Pro	Gln	
	35						40					45				
Thr	Asp	Tyr	Leu	Val	Lys	Phe	Gly	Ser	Phe	Trp	Ala	Gln	Ile	Phe	Gly	
	50					55					60					
Phe	Leu	Gly	Leu	Tyr	Asp	Val	Tyr	Ala	Ser	Ala	Trp	Phe	Val	Val	Ile	
65					70					75					80	
Met	Met	Phe	Leu	Val	Val	Ser	Thr	Ser	Leu	Cys	Leu	Ile	Arg	Asn	Val	
			85						90					95		
Pro	Pro	Phe	Trp	Arg	Glu	Met	Lys	Ser	Phe	Arg	Glu	Lys	Val	Lys	Glu	
			100					105					110			
Lys	Ser	Leu	Ala	Ala	Met	Arg	His	Ser	Ser	Leu	Leu	Asp	Val	Lys	Ile	
	115						120					125				

Ala	Pro	Glu	Val	Ala	Lys	Arg	Tyr	Leu	Glu	Val	Gln	Gly	Phe	Gln	Gly	130	135	140
Lys	Thr	Ile	Asn	Arg	Glu	Asp	Gly	Ser	Val	Leu	Ile	Ala	Ala	Lys	Lys	145	150	155
Gly	Thr	Met	Asn	Lys	Trp	Gly	Tyr	Ile	Phe	Ala	His	Val	Ala	Leu	Ile	165	170	175
Val	Ile	Cys	Leu	Gly	Gly	Leu	Ile	Asp	Ser	Asn	Leu	Leu	Leu	Lys	Leu	180	185	190
Gly	Met	Leu	Thr	Gly	Arg	Ile	Val	Pro	Asp	Asn	Gln	Ala	Val	Tyr	Ala	195	200	205
Lys	Asp	Phe	Lys	Pro	Glu	Ser	Ile	Leu	Gly	Ala	Ser	Asn	Leu	Ser	Phe	210	215	220
Arg	Gly	Asn	Val	Asn	Ile	Ser	Glu	Gly	Gln	Ser	Ala	Asp	Val	Val	Phe	225	230	235
Leu	Asn	Ala	Asp	Asn	Gly	Ile	Leu	Val	Gln	Asp	Leu	Pro	Phe	Glu	Val	245	250	255
Lys	Leu	Lys	Lys	Phe	His	Ile	Asp	Phe	Tyr	Asn	Thr	Gly	Met	Pro	Arg	260	265	270
Asp	Phe	Ala	Ser	Asp	Ile	Glu	Val	Thr	Asp	Lys	Ala	Thr	Gly	Glu	Lys	275	280	285
Leu	Glu	Arg	Thr	Ile	Arg	Val	Asn	His	Pro	Leu	Thr	Leu	His	Gly	Ile	290	295	300
Thr	Ile	Tyr	Gln	Ala	Ser	Phe	Ala	Asp	Gly	Gly	Ser	Asp	Leu	Thr	Phe	305	310	315
Lys	Ala	Trp	Asn	Leu	Gly	Asp	Ala	Ser	Arg	Glu	Pro	Val	Val	Leu	Lys	325	330	335
Ala	Thr	Ser	Ile	His	Gln	Phe	Pro	Leu	Glu	Ile	Gly	Lys	His	Lys	Tyr	340	345	350
Arg	Leu	Glu	Phe	Asp	Gln	Phe	Thr	Ser	Met	Asn	Val	Glu	Asp	Met	Ser	355	360	365
Glu	Gly	Ala	Glu	Arg	Glu	Lys	Ser	Leu	Lys	Ser	Thr	Leu	Asn	Asp	Val	370	375	380
Arg	Ala	Val	Thr	Gln	Glu	Gly	Lys	Lys	Tyr	Thr	Asn	Ile	Gly	Pro	Ser	385	390	395
Ile	Val	Tyr	Arg	Ile	Arg	Asp	Ala	Ala	Gly	Gln	Ala	Val	Glu	Tyr	Lys	405	410	415
Asn	Tyr	Met	Leu	Pro	Val	Leu	Gln	Glu	Gln	Asp	Tyr	Phe	Trp	Ile	Thr	420	425	430

Gly Thr Arg Ser Gly Leu Gln Gln Gln Tyr Arg Trp Leu Arg Ile Pro
 435 440 445
 Leu Asp Lys Gln Leu Lys Ala Asp Thr Phe Met Ala Leu Arg Glu Phe
 450 455 460
 Leu Lys Asp Gly Glu Gly Arg Lys Arg Leu Val Ala Asp Ala Thr Lys
 465 470 475 480
 Gly Ala Pro Ala Glu Ile Arg Glu Gln Phe Met Leu Ala Ala Glu Asn
 485 490 495
 Thr Leu Asn Ile Phe Ala Gln Lys Gly Tyr Leu Gly Leu Asp Glu Phe
 500 505 510
 Ile Thr Ser Asn Ile Pro Lys Glu Gln Gln Asp Lys Met Gln Gly Tyr
 515 520 525
 Phe Tyr Glu Met Leu Tyr Gly Val Met Asn Ala Ala Leu Asp Glu Thr
 530 535 540
 Ile Arg Arg Tyr Gly Leu Pro Glu Trp Gln Gln Asp Glu Ala Arg Asn
 545 550 555 560
 Arg Phe Leu Leu His Ser Met Asp Ala Tyr Thr Gly Leu Thr Glu Tyr
 565 570 575
 Pro Ala Pro Met Leu Leu Gln Leu Asp Gly Phe Ser Glu Val Arg Ser
 580 585 590
 Ser Gly Leu Gln Met Thr Arg Ser Pro Gly Ala Leu Leu Val Tyr Leu
 595 600 605
 Gly Ser Val Leu Leu Val Leu Gly Thr Val Leu Met Phe Tyr Val Arg
 610 615 620
 Glu Lys Arg Ala Trp Val Leu Phe Ser Asp Gly Lys Ile Arg Phe Ala
 625 630 635 640
 Met Ser Ser Ala Arg Ser Glu Arg Asp Leu Gln Lys Glu Phe Pro Lys
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 His Val Glu Ser Leu Gln Arg Leu Gly Lys Asp Leu Asn His Asp
 660 665 670

<210> 331
 <211> 2016
 <212> DNA
 <213> Neisseria meningitidis

<400> 331
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 cagatttttg gttttctggg actgtatgac gtctatgctt cggcatgggt tgcgtttatc 240
 atgatgtttt tggtgggttc taccagtttg tgcttgattc gcaatgtgcc gccgttctgg 300

cgcgaaatga	agtcttttcg	ggaaaagggtt	aaagaaaaaat	ctctggcggc	gatgcgccat	360
tcttcgctgt	tggatgtaaa	aattgcgccc	gaggttgcca	aacgttatct	ggaagtacaa	420
ggttttcagg	gaaaaaccat	taaccgtgaa	gacgggtcgg	ttctgattgc	cgccaaaaaa	480
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ggcgggttga	tagacagtaa	cctgctgttg	aaactgggta	tgctgaccgg	tcggattgtt	600
ccggacaatc	aggcggttta	tgccaaggat	ttcaagcccg	aaagtatttt	gggtgcgtcc	660
aatctctcat	ttaggggcaa	cgtcaatatt	tccgaggggc	agagtgcgga	tgtggttttc	720
ctgaatgccg	acaacgggat	attggttcag	gacttgcctt	ttgaagtcaa	actgaaaaaa	780
ttccatatcg	atttttacaa	tacgggtatg	ccgcgcgatt	ttgccagtga	tattgaagta	840
acggataagg	caaccgggtga	gaaactcgag	cgcaccatcc	gcgtgaacca	tcctttgacc	900
ttgcacggga	tcacgattta	tcaggcgagt	tttgccgacg	gcggttcgga	tttgacattc	960
aaggcgttga	atttgggtga	tgcttcgcgc	gagcctgtcg	tgttgaaggc	aacatccata	1020
caccagtttc	cgttggaaat	tggcaaacac	aaatatcgtc	ttgagttcga	tcagtttact	1080
tctatgaatg	tggaggacat	gagcaggggc	gcggaacggg	aaaaaagcct	gaaatccacg	1140
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ccggttttgc	aggaacagga	ttattttttg	attaccggca	cgcgccagcg	cttgcagcag	1320
caataccgct	ggctgcgtat	ccccttggac	aagcagttga	aagcggacac	ctttatggca	1380
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cgtttctctg	tgcacagtat	ggatgcgtac	acgggtttga	ccgaatatcc	cgcgcctatg	1740
ctgctgcaac	ttgatgggtt	ttccgaggtg	cgttcgtcgg	gtttgcagat	gacccgttcc	1800
ccgggtgcgc	ttttggtcta	tctcggtcgc	gtgctgttgg	tattgggtac	ggtattgatg	1860
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atgtcttcgg	cccgcagcga	acgggatttg	cagaaggaat	ttccaaaaaca	cgtcgagagt	1980
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<210> 332

<211> 671

<212> PRT

<213> Neisseria meningitidis

<400> 332

Met	Ser	Lys	Ser	Arg	Arg	Ser	Pro	Pro	Leu	Leu	Ser	Arg	Pro	Trp	Phe
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Ala	Phe	Phe	Ser	Ser	Met	Arg	Phe	Ala	Val	Ala	Leu	Leu	Ser	Leu	Leu
			20					25					30		
Gly	Ile	Ala	Ser	Val	Ile	Gly	Thr	Val	Leu	Gln	Gln	Asn	Gln	Pro	Gln
	35					40						45			
Thr	Asp	Tyr	Leu	Val	Lys	Phe	Gly	Ser	Phe	Trp	Ala	Gln	Ile	Phe	Gly
	50					55					60				
Phe	Leu	Gly	Leu	Tyr	Asp	Val	Tyr	Ala	Ser	Ala	Trp	Phe	Val	Val	Ile
65				70				75						80	
Met	Met	Phe	Leu	Val	Val	Ser	Thr	Ser	Leu	Cys	Leu	Ile	Arg	Asn	Val
			85					90						95	
Pro	Pro	Phe	Trp	Arg	Glu	Met	Lys	Ser	Phe	Arg	Glu	Lys	Val	Lys	Glu
			100					105						110	

Lys	Ser	Leu	Ala	Ala	Met	Arg	His	Ser	Ser	Leu	Leu	Asp	Val	Lys	Ile	115	120	125
Ala	Pro	Glu	Val	Ala	Lys	Arg	Tyr	Leu	Glu	Val	Gln	Gly	Phe	Gln	Gly	130	135	140
Lys	Thr	Ile	Asn	Arg	Glu	Asp	Gly	Ser	Val	Leu	Ile	Ala	Ala	Lys	Lys	145	150	155
Gly	Thr	Met	Asn	Lys	Trp	Gly	Tyr	Ile	Phe	Ala	His	Val	Ala	Leu	Ile	165	170	175
Val	Ile	Cys	Leu	Gly	Gly	Leu	Ile	Asp	Ser	Asn	Leu	Leu	Leu	Lys	Leu	180	185	190
Gly	Met	Leu	Thr	Gly	Arg	Ile	Val	Pro	Asp	Asn	Gln	Ala	Val	Tyr	Ala	195	200	205
Lys	Asp	Phe	Lys	Pro	Glu	Ser	Ile	Leu	Gly	Ala	Ser	Asn	Leu	Ser	Phe	210	215	220
Arg	Gly	Asn	Val	Asn	Ile	Ser	Glu	Gly	Gln	Ser	Ala	Asp	Val	Val	Phe	225	230	235
Leu	Asn	Ala	Asp	Asn	Gly	Ile	Leu	Val	Gln	Asp	Leu	Pro	Phe	Glu	Val	245	250	255
Lys	Leu	Lys	Lys	Phe	His	Ile	Asp	Phe	Tyr	Asn	Thr	Gly	Met	Pro	Arg	260	265	270
Asp	Phe	Ala	Ser	Asp	Ile	Glu	Val	Thr	Asp	Lys	Ala	Thr	Gly	Glu	Lys	275	280	285
Leu	Glu	Arg	Thr	Ile	Arg	Val	Asn	His	Pro	Leu	Thr	Leu	His	Gly	Ile	290	295	300
Thr	Ile	Tyr	Gln	Ala	Ser	Phe	Ala	Asp	Gly	Gly	Ser	Asp	Leu	Thr	Phe	305	310	315
Lys	Ala	Trp	Asn	Leu	Gly	Asp	Ala	Ser	Arg	Glu	Pro	Val	Val	Leu	Lys	325	330	335
Ala	Thr	Ser	Ile	His	Gln	Phe	Pro	Leu	Glu	Ile	Gly	Lys	His	Lys	Tyr	340	345	350
Arg	Leu	Glu	Phe	Asp	Gln	Phe	Thr	Ser	Met	Asn	Val	Glu	Asp	Met	Ser	355	360	365
Glu	Gly	Ala	Glu	Arg	Glu	Lys	Ser	Leu	Lys	Ser	Thr	Leu	Asn	Asp	Val	370	375	380
Arg	Ala	Val	Thr	Gln	Glu	Gly	Lys	Lys	Tyr	Thr	Asn	Ile	Gly	Pro	Ser	385	390	395
Ile	Val	Tyr	Arg	Ile	Arg	Asp	Ala	Ala	Gly	Gln	Ala	Val	Glu	Tyr	Lys	405	410	415

Asn Tyr Met Leu Pro Val Leu Gln Glu Gln Asp Tyr Phe Trp Ile Thr
 420 425 430
 Gly Thr Arg Ser Gly Leu Gln Gln Gln Tyr Arg Trp Leu Arg Ile Pro
 435 440 445
 Leu Asp Lys Gln Leu Lys Ala Asp Thr Phe Met Ala Leu Arg Glu Phe
 450 455 460
 Leu Lys Asp Gly Glu Gly Arg Lys Arg Leu Val Ala Asp Ala Thr Lys
 465 470 475 480
 Gly Ala Pro Ala Glu Ile Arg Glu Gln Phe Met Leu Ala Ala Glu Asn
 485 490 495
 Thr Leu Asn Ile Phe Ala Gln Lys Gly Tyr Leu Gly Leu Asp Glu Phe
 500 505 510
 Ile Thr Ser Asn Ile Pro Lys Glu Gln Gln Asp Lys Met Gln Gly Tyr
 515 520 525
 Phe Tyr Glu Met Leu Tyr Gly Val Met Asn Ala Ala Leu Asp Glu Thr
 530 535 540
 Ile Arg Arg Tyr Gly Leu Pro Glu Trp Gln Gln Asp Glu Ala Arg Asn
 545 550 555 560
 Arg Phe Leu Leu His Ser Met Asp Ala Tyr Thr Gly Leu Thr Glu Tyr
 565 570 575
 Pro Ala Pro Met Leu Leu Gln Leu Asp Gly Phe Ser Glu Val Arg Ser
 580 585 590
 Ser Gly Leu Gln Met Thr Arg Ser Pro Gly Ala Leu Leu Val Tyr Leu
 595 600 605
 Gly Ser Val Leu Leu Val Leu Gly Thr Val Leu Met Phe Tyr Val Arg
 610 615 620
 Glu Lys Arg Ala Trp Val Leu Phe Ser Asp Gly Lys Ile Arg Phe Ala
 625 630 635 640
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<210> 333
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

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<223> N= Unknown

<400> 333
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8

<210> 334
<211> 434
<212> PRT
<213> Neisseria gonorrhoeae

<220>
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<222> (398)..(398)
<223> Xaa= any amino acid

<400> 334
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Met Pro Arg Asp Phe Ala Ser Asp Ile Glu Val Thr Asp Lys Ala Thr
35 40 45
Gly Glu Lys Leu Glu Arg Thr Ile Arg Val Asn His Pro Leu Thr Leu
50 55 60
His Gly Ile Thr Ile Tyr Gln Ala Ser Phe Ala Asp Gly Gly Ser Asp
65 70 75 80
Leu Thr Phe Lys Ala Trp Asn Leu Arg Asp Ala Ser Arg Glu Pro Val
85 90 95
Val Leu Lys Ala Thr Ser Ile His Gln Phe Pro Leu Glu Ile Gly Lys
100 105 110
His Lys Tyr Arg Leu Glu Phe Asp Gln Phe Thr Ser Met Asn Val Glu
115 120 125
Asp Met Ser Glu Gly Ala Glu Arg Glu Lys Ser Leu Lys Ser Thr Leu
130 135 140
Asn Asp Val Arg Ala Val Thr Gln Glu Gly Lys Lys Tyr Thr Asn Ile
145 150 155 160
Gly Pro Ser Ile Val Tyr Arg Ile Arg Asp Ala Ala Gly Gln Ala Val
165 170 175
Glu Tyr Lys Asn Tyr Met Leu Pro Ile Leu Gln Asp Lys Asp Tyr Phe
180 185 190
Trp Leu Thr Gly Thr Arg Ser Gly Leu Gln Gln Gln Tyr Arg Trp Leu
195 200 205
Arg Ile Pro Leu Asp Lys Gln Leu Lys Ala Asp Thr Phe Met Ala Leu

210	215	220
Arg Glu Phe Leu Lys Asp Gly Glu Gly Arg Lys Arg Leu Val Ala Asp 225 230 235 240		
Ala Thr Lys Asp Ala Pro Ala Glu Ile Arg Glu Gln Phe Met Leu Ala 245 250 255		
Ala Glu Asn Thr Leu Asn Ile Phe Ala Gln Lys Gly Tyr Leu Gly Leu 260 265 270		
Asp Glu Phe Ile Thr Ser Asn Ile Pro Lys Gly Gln Gln Asp Lys Met 275 280 285		
Gln Gly Tyr Phe Tyr Glu Met Leu Tyr Gly Val Met Asn Ala Ala Leu 290 295 300		
Asp Glu Thr Ile Arg Arg Tyr Gly Leu Pro Glu Trp Gln Gln Asp Glu 305 310 315 320		
Ala Arg Asn Arg Phe Leu Leu His Ser Met Asp Ala Tyr Thr Gly Leu 325 330 335		
Thr Glu Tyr Pro Ala Pro Met Leu Leu Gln Leu Asp Gly Phe Ser Glu 340 345 350		
Val Arg Ser Ser Gly Leu Gln Met Thr Arg Ser Pro Gly Ala Leu Leu 355 360 365		
Val Tyr Leu Gly Ser Val Leu Leu Val Leu Gly Thr Val Phe Met Phe 370 375 380		
Tyr Val Pro Lys Lys Arg Ala Trp Val Leu Phe Ser Asn Xaa Lys Ile 385 390 395 400		
Arg Phe Ala Met Ser Ser Ala Arg Ser Glu Arg Asp Leu Gln Lys Glu 405 410 415		
Phe Pro Lys His Val Glu Ser Leu Gln Arg Leu Gly Lys Asp Leu Asn 420 425 430		

His Asp

<210> 335
 <211> 2016
 <212> DNA
 <213> Neisseria gonorrhoeae

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cggatttttg attttttggg tttgtatgat gtctatgctt cggcatgggt tgtcgttatc	240
atgatgtttc tgggtggttc taccagtttg tgtttaatcc gtaacgttcc gccgttttgg	300
cgcgaaatga agtctttccg ggaaaagggt aaagaaaaat ctctggcggc gatgcgccat	360

tcttcgctgt	tggatgtaaa	aattgcccc	gaagttgcca	aacgttatct	ggaggtgcgg	420
ggttttcagg	gaaaaaccgt	cagccgtgag	gacgggtcgg	ttctgattgc	cgccaaaaaa	480
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ccggacaatc	aggcggttta	tgccaaggat	ttcaagcccg	aaagtatttt	gggtgcgtcc	660
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cagcaggata	agatgcaggg	ctatttctac	gaaatgcttt	acggcgtgat	gaacgctgct	1620
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ccgggtgcgc	ttttgggtcta	tctcggtcgc	gtattgttgg	ttttgggtac	gggtatttatg	1860
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atgtcttcgg	cccgcagcga	acgggatttg	cagaaggaat	ttccaaaaca	cgtcgagagc	1980
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<210> 336

<211> 671

<212> PRT

<213> Neisseria gonorrhoeae

<400> 336

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Ala	Phe	Phe	Ser	Ser	Met	Arg	Phe	Ala	Val	Ala	Leu	Leu	Ser	Leu	Leu
			20					25					30		
Gly	Ile	Ala	Ser	Val	Ile	Gly	Thr	Val	Leu	Gln	Gln	Asn	Gln	Pro	Gln
	35						40					45			
Thr	Asp	Tyr	Leu	Val	Lys	Phe	Gly	Ser	Phe	Trp	Ala	Gln	Ile	Phe	Gly
	50					55					60				
Phe	Leu	Gly	Leu	Tyr	Asp	Val	Tyr	Ala	Ser	Ala	Trp	Phe	Val	Val	Ile
65					70				75						80
Met	Met	Phe	Leu	Val	Val	Ser	Thr	Ser	Leu	Cys	Leu	Ile	Arg	Asn	Val
			85						90					95	
Pro	Pro	Phe	Trp	Arg	Glu	Met	Lys	Ser	Phe	Arg	Glu	Lys	Val	Lys	Glu
			100					105					110		

Lys	Ser	Leu	Ala	Ala	Met	Arg	His	Ser	Ser	Leu	Leu	Asp	Val	Lys	Ile	115	120	125
Ala	Pro	Glu	Val	Ala	Lys	Arg	Tyr	Leu	Glu	Val	Gln	Gly	Phe	Gln	Gly	130	135	140
Lys	Thr	Ile	Asn	Arg	Glu	Asp	Gly	Ser	Val	Leu	Ile	Ala	Ala	Lys	Lys	145	150	155
Gly	Thr	Met	Asn	Lys	Trp	Gly	Tyr	Ile	Phe	Ala	His	Val	Ala	Leu	Ile	165	170	175
Val	Ile	Cys	Leu	Gly	Gly	Leu	Ile	Asp	Ser	Asn	Leu	Leu	Leu	Lys	Leu	180	185	190
Gly	Met	Leu	Thr	Gly	Arg	Ile	Val	Pro	Asp	Asn	Gln	Ala	Val	Tyr	Ala	195	200	205
Lys	Asp	Phe	Lys	Pro	Glu	Ser	Ile	Leu	Gly	Ala	Ser	Asn	Leu	Ser	Phe	210	215	220
Arg	Gly	Asn	Val	Asn	Ile	Ser	Glu	Gly	Gln	Ser	Ala	Asp	Val	Val	Phe	225	230	235
Leu	Asn	Ala	Asp	Asn	Gly	Ile	Leu	Val	Gln	Asp	Leu	Pro	Phe	Glu	Val	245	250	255
Lys	Leu	Lys	Lys	Phe	His	Ile	Asp	Phe	Tyr	Asn	Thr	Gly	Met	Pro	Arg	260	265	270
Asp	Phe	Ala	Ser	Asp	Ile	Glu	Val	Thr	Asp	Lys	Ala	Thr	Gly	Glu	Lys	275	280	285
Leu	Glu	Arg	Thr	Ile	Arg	Val	Asn	His	Pro	Leu	Thr	Leu	His	Gly	Ile	290	295	300
Thr	Ile	Tyr	Gln	Ala	Ser	Phe	Ala	Asp	Gly	Gly	Ser	Asp	Leu	Thr	Phe	305	310	315
Lys	Ala	Trp	Asn	Leu	Gly	Asp	Ala	Ser	Arg	Glu	Pro	Val	Val	Leu	Lys	325	330	335
Ala	Thr	Ser	Ile	His	Gln	Phe	Pro	Leu	Glu	Ile	Gly	Lys	His	Lys	Tyr	340	345	350
Arg	Leu	Glu	Phe	Asp	Gln	Phe	Thr	Ser	Met	Asn	Val	Glu	Asp	Met	Ser	355	360	365
Glu	Gly	Ala	Glu	Arg	Glu	Lys	Ser	Leu	Lys	Ser	Thr	Leu	Asn	Asp	Val	370	375	380
Arg	Ala	Val	Thr	Gln	Glu	Gly	Lys	Lys	Tyr	Thr	Asn	Ile	Gly	Pro	Ser	385	390	395
Ile	Val	Tyr	Arg	Ile	Arg	Asp	Ala	Ala	Gly	Gln	Ala	Val	Glu	Tyr	Lys	405	410	415

Asn Tyr Met Leu Pro Val Leu Gln Glu Gln Asp Tyr Phe Trp Ile Thr
 420 425 430
 Gly Thr Arg Ser Gly Leu Gln Gln Gln Tyr Arg Trp Leu Arg Ile Pro
 435 440 445
 Leu Asp Lys Gln Leu Lys Ala Asp Thr Phe Met Ala Leu Arg Glu Phe
 450 455 460
 Leu Lys Asp Gly Glu Gly Arg Lys Arg Leu Val Ala Asp Ala Thr Lys
 465 470 475 480
 Gly Ala Pro Ala Glu Ile Arg Glu Gln Phe Met Leu Ala Ala Glu Asn
 485 490 495
 Thr Leu Asn Ile Phe Ala Gln Lys Gly Tyr Leu Gly Leu Asp Glu Phe
 500 505 510
 Ile Thr Ser Asn Ile Pro Lys Glu Gln Gln Asp Lys Met Gln Gly Tyr
 515 520 525
 Phe Tyr Glu Met Leu Tyr Gly Val Met Asn Ala Ala Leu Asp Glu Thr
 530 535 540
 Ile Arg Arg Tyr Gly Leu Pro Glu Trp Gln Gln Asp Glu Ala Arg Asn
 545 550 555 560
 Arg Phe Leu Leu His Ser Met Asp Ala Tyr Thr Gly Leu Thr Glu Tyr
 565 570 575
 Pro Ala Pro Met Leu Leu Gln Leu Asp Gly Phe Ser Glu Val Arg Ser
 580 585 590
 Ser Gly Leu Gln Met Thr Arg Ser Pro Gly Ala Leu Leu Val Tyr Leu
 595 600 605
 Gly Ser Val Leu Leu Val Leu Gly Thr Val Leu Met Phe Tyr Val Arg
 610 615 620
 Glu Lys Arg Ala Trp Val Leu Phe Ser Asp Gly Lys Ile Arg Phe Ala
 625 630 635 640
 Met Ser Ser Ala Arg Ser Glu Arg Asp Leu Gln Lys Glu Phe Pro Lys
 645 650 655
 His Val Glu Ser Leu Gln Arg Leu Gly Lys Asp Leu Asn His Asp
 660 665 670

<210> 337
 <211> 489
 <212> DNA
 <213> Neisseria meningitidis

<400> 337
 atgatgagta atamaatggm acaaaaaggg ttacattga ttgmgmtgat gatagtcgtc 60
 gcgatactcg gcattatcag cgtcattgcc ataccttctt atcmaagtta tattgaaaaa 120

ggctatcagt	cccagcttta	tacggagatg	gycggtatca	acaatatttc	caaacagttt	180
attttgaaaa	atcccctgga	cgataatcag	accatcgaga	acaaactgga	aatatttgtc	240
tcaggctata	agatgaatcc	gaaaattgcc	aaaaaatata	gtgtttcggg	aaagtttgtc	300
gataaggaaa	aatcaagggc	atacaggttg	gtcggcgttc	cgaaggcggg	gacgggttat	360
actttgtcgg	tatggatgaa	cagcgtgggc	gacggataca	aatgccgtga	tgccgcttct	420
gcccaagccc	atttgagac	cttgtcctca	gatgtcggct	gtgaagcctt	ctctaatacgt	480
aaaaaataa						489

<210> 338
 <211> 162
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (5)..(5)
 <223> Xaa= any amino acid

<220>
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 <222> (7)..(7)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (15)..(16)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (35)..(35)
 <223> Xaa= any amino acid

<220>
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 <222> (51)..(51)
 <223> Xaa= any amino acid

<400> 338
 Met Met Ser Asn Xaa Met Xaa Gln Lys Gly Phe Thr Leu Ile Xaa Xaa
 1 5 10 15
 Met Ile Val Val Ala Ile Leu Gly Ile Ile Ser Val Ile Ala Ile Pro
 20 25 30
 Ser Tyr Xaa Ser Tyr Ile Glu Lys Gly Tyr Gln Ser Gln Leu Tyr Thr
 35 40 45
 Glu Met Xaa Gly Ile Asn Asn Ile Ser Lys Gln Phe Ile Leu Lys Asn
 50 55 60
 Pro Leu Asp Asp Asn Gln Thr Ile Glu Asn Lys Leu Glu Ile Phe Val
 65 70 75 80
 Ser Gly Tyr Lys Met Asn Pro Lys Ile Ala Lys Lys Tyr Ser Val Ser
 85 90 95

Val Lys Phe Val Asp Lys Glu Lys Ser Arg Ala Tyr Arg Leu Val Gly
 100 105 110

Val Pro Lys Ala Gly Thr Gly Tyr Thr Leu Ser Val Trp Met Asn Ser
 115 120 125

Val Gly Asp Gly Tyr Lys Cys Arg Asp Ala Ala Ser Ala Gln Ala His
 130 135 140

Leu Glu Thr Leu Ser Ser Asp Val Gly Cys Glu Ala Phe Ser Asn Arg
 145 150 155 160

Lys Lys

<210> 339
 <211> 489
 <212> DNA
 <213> Neisseria meningitidis

<400> 339
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 gcgatactcg gcattatcag cgtcattgcc ataccttctt atcaaagtta tattgaaaaa 120
 ggctatcagt cccagcttta tacggagatg gtcggtatca acaatatttc caaacagttt 180
 attttgaaaa atccccctgga cgataatcag accatcgaga acaaactgga aatatttgtc 240
 tcagggtata agatgaatcc gaaaattgcc aaaaaatata gtgtttcggg aaagtttgtc 300
 gataaggaaa aatcaagggc atacagggttg gtcggcggttc cgaaggcggg gacggggttat 360
 actttgtcgg tatggatgaa cagcgtgggc gacggatata aatgccgtga tgccgcttct 420
 gcccaagccc atttgagac cttgtcctca gatgtcggct gtgaagcctt ctctaactcg 480
 aaaaaataa 489

<210> 340
 <211> 162
 <212> PRT
 <213> Neisseria meningitidis

<400> 340
 Met Met Ser Asn Lys Met Glu Gln Lys Gly Phe Thr Leu Ile Glu Met
 1 5 10 15
 Met Ile Val Val Ala Ile Leu Gly Ile Ile Ser Val Ile Ala Ile Pro
 20 25 30
 Ser Tyr Gln Ser Tyr Ile Glu Lys Gly Tyr Gln Ser Gln Leu Tyr Thr
 35 40 45
 Glu Met Val Gly Ile Asn Asn Ile Ser Lys Gln Phe Ile Leu Lys Asn
 50 55 60
 Pro Leu Asp Asp Asn Gln Thr Ile Glu Asn Lys Leu Glu Ile Phe Val
 65 70 75 80
 Ser Gly Tyr Lys Met Asn Pro Lys Ile Ala Lys Lys Tyr Ser Val Ser
 85 90 95
 Val Lys Phe Val Asp Lys Glu Lys Ser Arg Ala Tyr Arg Leu Val Gly

100	105	110
Val Pro Lys Ala Gly Thr Gly Tyr Thr Leu Ser Val Trp Met Asn Ser		
115	120	125
Val Gly Asp Gly Tyr Lys Cys Arg Asp Ala Ala Ser Ala Gln Ala His		
130	135	140
Leu Glu Thr Leu Ser Ser Asp Val Gly Cys Glu Ala Phe Ser Asn Arg		
145	150	155
		160

Lys Lys

<210> 341
 <211> 489
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (44)..(44)
 <223> N= Unknown

<220>
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 <222> (47)..(47)
 <223> N= Unknown

<220>
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 <222> (49)..(49)
 <223> N= Unknown

<220>
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 <222> (51)..(51)
 <223> N= Unknown

<220>
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 <222> (54)..(54)
 <223> N= Unknown

<220>
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 <222> (56)..(56)
 <223> N= Unknown

<220>
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 <222> (58)..(58)
 <223> N= Unknown

<220>
 <221> misc_feature

<222> (68)..(68)
<223> N= Unknown

<220>
<221> misc_feature
<222> (70)..(70)
<223> N= Unknown

<220>
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<222> (73)..(73)
<223> N= Unknown

<220>
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<222> (77)..(77)
<223> N= Unknown

<220>
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<222> (88)..(88)
<223> N= Unknown

<220>
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<222> (90)..(90)
<223> N= Unknown

<220>
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<222> (93)..(95)
<223> N= Unknown

<220>
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<222> (97)..(97)
<223> N= Unknown

<220>
<221> misc_feature
<222> (99)..(99)
<223> N= Unknown

<220>
<221> misc_feature
<222> (104)..(105)
<223> N= Unknown

<220>
<221> misc_feature
<222> (179)..(179)
<223> N= Unknown

<220>
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<222> (315)..(315)

<223> N= Unknown

<400> 341

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gcgatacncn	gcnttancag	cgtcattncn	atnnmtncnt	atcnnagtta	tattgaaaaa	120
ggctatcagt	cccagcttta	tacggagatg	gtcggtatca	acaatatattc	caaacagtnt	180
attttgaaaa	atccccctgga	cgataatcag	accatcaaga	gcaaactgga	aatattttgtc	240
tcaggctata	agatgaatcc	gaaaattgcc	gaaaaatata	atgttttcggt	gcattttgtc	300
aatgaggaaa	aaccnagggc	atacagcttg	gtcggcggtc	caaagacggg	gacgggttat	360
actttgtcgg	tatggatgaa	cagcgtgggc	gacggataca	aatgccgtga	tgccgcttct	420
gcccagagccc	atttgagagac	cttgtcctca	gatgtcggct	gtgaagcctt	ctctaactgt	480
aaaaaatag						489

<210> 342

<211> 162

<212> PRT

<213> Neisseria meningitidis

<220>

<221> misc_feature

<222> (15)..(20)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (23)..(26)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (30)..(33)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (35)..(35)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (60)..(60)

<223> Xaa= any amino acid

<400> 342

Met	Met	Ser	Asn	Lys	Met	Glu	Gln	Lys	Gly	Phe	Thr	Leu	Ile	Xaa	Xaa
1			5					10						15	
Xaa	Xaa	Xaa	Xaa	Ala	Ile	Xaa	Xaa	Xaa	Xaa	Ser	Val	Ile	Xaa	Xaa	Xaa
			20					25					30		
Xaa	Tyr	Xaa	Ser	Tyr	Ile	Glu	Lys	Gly	Tyr	Gln	Ser	Gln	Leu	Tyr	Thr
	35						40				45				
Glu	Met	Val	Gly	Ile	Asn	Asn	Ile	Ser	Lys	Gln	Xaa	Ile	Leu	Lys	Asn
	50					55					60				

Pro Leu Asp Asp Asn Gln Thr Ile Lys Ser Lys Leu Glu Ile Phe Val
65 70 75 80

Ser Gly Tyr Lys Met Asn Pro Lys Ile Ala Glu Lys Tyr Asn Val Ser
85 90 95

Val His Phe Val Asn Glu Glu Lys Pro Arg Ala Tyr Ser Leu Val Gly
100 105 110

Val Pro Lys Thr Gly Thr Gly Tyr Thr Leu Ser Val Trp Met Asn Ser
115 120 125

Val Gly Asp Gly Tyr Lys Cys Arg Asp Ala Ala Ser Ala Arg Ala His
130 135 140

Leu Glu Thr Leu Ser Ser Asp Val Gly Cys Glu Ala Phe Ser Asn Arg
145 150 155 160

Lys Lys

<210> 343

<211> 489

<212> DNA

<213> Neisseria gonorrhoeae

<400> 343

atgatgagca	ataaaatgga	acaaaaaggg	tttacattga	ttgagatgat	gatagttgtc	60
acgatactcg	gcatcatcag	cgtcattgcc	ataccttctt	atcagagtta	tattgaaaaa	120
ggctatcagt	cccagcttta	tacggagatg	gtcggtatca	acaatgttct	caaacagttt	180
atthtgaaaa	atccccagga	cgataatgat	accctcaaga	gcaaactgaa	aatatthtgc	240
tcaggctata	agatgaatcc	gaaaattgcc	aaaaaatata	gtgtttcggg	aaggthtgc	300
gatgcggaaa	aaccaagggc	atacaggttg	gtcggcggtc	cgaacgcggg	gacgggttat	360
actthtgcgg	tatggatgaa	cagcgtgggc	gacggataca	aatgccgtga	tgccacttct	420
gcccaggcct	attcggacac	cttgctcgca	gatagcggct	gtgaagcttt	ctctaactcg	480
aaaaaatag						489

<210> 344

<211> 162

<212> PRT

<213> Neisseria gonorrhoeae

<400> 344

Met Met Ser Asn Lys Met Glu Gln Lys Gly Phe Thr Leu Ile Glu Met
1 5 10 15

Met Ile Val Val Thr Ile Leu Gly Ile Ile Ser Val Ile Ala Ile Pro
20 25 30

Ser Tyr Gln Ser Tyr Ile Glu Lys Gly Tyr Gln Ser Gln Leu Tyr Thr
35 40 45

Glu Met Val Gly Ile Asn Asn Val Leu Lys Gln Phe Ile Leu Lys Asn
50 55 60

Pro Gln Asp Asp Asn Asp Thr Leu Lys Ser Lys Leu Lys Ile Phe Val

65	70	75	80
Ser Gly Tyr Lys Met Asn Pro Lys Ile Ala Lys Lys Tyr Ser Val Ser			
85	90	95	
Val Arg Phe Val Asp Ala Glu Lys Pro Arg Ala Tyr Arg Leu Val Gly			
100	105	110	
Val Pro Asn Ala Gly Thr Gly Tyr Thr Leu Ser Val Trp Met Asn Ser			
115	120	125	
Val Gly Asp Gly Tyr Lys Cys Arg Asp Ala Thr Ser Ala Gln Ala Tyr			
130	135	140	
Ser Asp Thr Leu Ser Ala Asp Ser Gly Cys Glu Ala Phe Ser Asn Arg			
145	150	155	160

Lys Lys

<210> 345
 <211> 276
 <212> DNA
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (263)..(263)
 <223> N= Unknown

<400> 345	
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tttgccgccc ctgccgacgc ggtaagccaa atccgtcaaa acgccactca agtattgagc	120
atcttaaaaa acggcgatgc caacaccgct cgccaaaaag ccgaagccta tgcgattccc	180
tatttcgatt tccaacgtat gaccgcattg gcggtcggca acccttgsg caccggtccg	240
acggcaaaaa caagcgttgg ccnagaattt caacc	276

<210> 346
 <211> 93
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (77)..(77)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (79)..(79)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (82)..(82)
 <223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (89)..(89)
<223> Xaa= any amino acid

<400> 346

Met Lys Lys Ser Ser Leu Ile Ser Ala Leu Gly Ile Gly Ile Leu Ser
1 5 10 15

Ile Gly Met Ala Phe Ala Ala Pro Ala Asp Ala Val Ser Gln Ile Arg
20 25 30

Gln Asn Ala Thr Gln Val Leu Ser Ile Leu Lys Asn Gly Asp Ala Asn
35 40 45

Thr Ala Arg Gln Lys Ala Glu Ala Tyr Ala Ile Pro Tyr Phe Asp Phe
50 55 60

Gln Arg Met Thr Ala Leu Ala Val Gly Asn Pro Trp Xaa Thr Xaa Ser
65 70 75 80

Asp Xaa Gln Lys Gln Ala Leu Ala Xaa Glu Phe Gln Pro
85 90

<210> 347
<211> 591
<212> DNA
<213> Neisseria meningitidis

<400> 347

atgaaaaaat	cctccctcat	cagcgcattg	ggcatcggta	ttttgagcat	cggcatggca	60
tttgccgccc	ctgccgacgc	ggtaagccaa	atccgtcaaa	acgccactca	agtattgagc	120
atcttaaaaa	acggcgatgc	caacaccgct	cgccaaaaag	ccgaagccta	tgcgattccc	180
tatttcgatt	tccaacgtat	gaccgcattg	gcggtcggca	acccttggcg	caccgcgtcc	240
gacgcgcaaa	aacaagcgtt	ggccaaagaa	tttcaaacc	tgctgatccg	cacctattcc	300
ggcacgatgc	tgaaattaaa	aaacgccaac	gtcaacgtca	aagacaatcc	catcgtcaat	360
aaaggcggca	aagaaatcat	cgtccgcgcc	gaagtcggcg	taccggggca	aaaacccgtc	420
aacatggact	tcaccaccta	ccaaagcggc	ggtaaatacc	gtacctacaa	cgtcgccatc	480
gaaggcgcga	gcctggttac	cgtgtaccgc	aaccaattcg	gcgaaattat	caaagcgaaa	540
ggcgtggacg	gactgattgc	cgagttgaaa	gccaaaaacg	gcggcaaata	a	591

<210> 348
<211> 196
<212> PRT
<213> Neisseria meningitidis

<400> 348

Met Lys Lys Ser Ser Leu Ile Ser Ala Leu Gly Ile Gly Ile Leu Ser
1 5 10 15

Ile Gly Met Ala Phe Ala Ala Pro Ala Asp Ala Val Ser Gln Ile Arg
20 25 30

Gln Asn Ala Thr Gln Val Leu Ser Ile Leu Lys Asn Gly Asp Ala Asn
35 40 45

Thr Ala Arg Gln Lys Ala Glu Ala Tyr Ala Ile Pro Tyr Phe Asp Phe
 50 55 60
 Gln Arg Met Thr Ala Leu Ala Val Gly Asn Pro Trp Arg Thr Ala Ser
 65 70 75 80
 Asp Ala Gln Lys Gln Ala Leu Ala Lys Glu Phe Gln Thr Leu Leu Ile
 85 90 95
 Arg Thr Tyr Ser Gly Thr Met Leu Lys Leu Lys Asn Ala Asn Val Asn
 100 105 110
 Val Lys Asp Asn Pro Ile Val Asn Lys Gly Gly Lys Glu Ile Ile Val
 115 120 125
 Arg Ala Glu Val Gly Val Pro Gly Gln Lys Pro Val Asn Met Asp Phe
 130 135 140
 Thr Thr Tyr Gln Ser Gly Gly Lys Tyr Arg Thr Tyr Asn Val Ala Ile
 145 150 155 160
 Glu Gly Ala Ser Leu Val Thr Val Tyr Arg Asn Gln Phe Gly Glu Ile
 165 170 175
 Ile Lys Ala Lys Gly Val Asp Gly Leu Ile Ala Glu Leu Lys Ala Lys
 180 185 190
 Asn Gly Gly Lys
 195

<210> 349
 <211> 591
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 349
 atgaaaaaat cctccttcat cagcgcatcg ggcacgcgta ttttgagcat cggcatggca 60
 tttgccgccc ctgccgacgc ggtaaacc aa atccgtcaaa acgccactca agtattgagc 120
 atcttaaaaa gcggtgatgc caacaccgcc cgccaaaaag ccgaagccta tgcgattccc 180
 tatttcgatt tccaacgtat gaccgcattg gcggtcggca acccttggcg caccgcgtcc 240
 gacgcgcaaa aacaagcgtt ggccaaagaa tttcaaacc tgctgatccg cacctattcc 300
 ggcacgatgc tgaaattaaa aaacgccaac gtcaacgtca aagacaatcc catcgtcaat 360
 aaaggcggca aagaaatcat cgtccgcgcc gaagtcggcg taccggggca aaaaccgctc 420
 aacatggact tcaccaccta ccaaagcggc ggtaaatacc gtacctaca cgtcgccatc 480
 gaaggcgcga gcctggttac cgtgtaccgc aaccaattcg gcgaaattat caaagcgaaa 540
 ggcgtggacg gactgattgc cgagttgaag gctaaaaacg gcagcaagta a 591

<210> 350
 <211> 196
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 350
 Met Lys Lys Ser Ser Phe Ile Ser Ala Leu Gly Ile Gly Ile Leu Ser
 1 5 10 15

Ile Gly Met Ala Phe Ala Ala Pro Ala Asp Ala Val Asn Gln Ile Arg
 20 25 30
 Gln Asn Ala Thr Gln Val Leu Ser Ile Leu Lys Ser Gly Asp Ala Asn
 35 40 45
 Thr Ala Arg Gln Lys Ala Glu Ala Tyr Ala Ile Pro Tyr Phe Asp Phe
 50 55 60
 Gln Arg Met Thr Ala Leu Ala Val Gly Asn Pro Trp Arg Thr Ala Ser
 65 70 75 80
 Asp Ala Gln Lys Gln Ala Leu Ala Lys Glu Phe Gln Thr Leu Leu Ile
 85 90 95
 Arg Thr Tyr Ser Gly Thr Met Leu Lys Leu Lys Asn Ala Asn Val Asn
 100 105 110
 Val Lys Asp Asn Pro Ile Val Asn Lys Gly Gly Lys Glu Ile Ile Val
 115 120 125
 Arg Ala Glu Val Gly Val Pro Gly Gln Lys Pro Val Asn Met Asp Phe
 130 135 140
 Thr Thr Tyr Gln Ser Gly Gly Lys Tyr Arg Thr Tyr Asn Val Ala Ile
 145 150 155 160
 Glu Gly Ala Ser Leu Val Thr Val Tyr Arg Asn Gln Phe Gly Glu Ile
 165 170 175
 Ile Lys Ala Lys Gly Val Asp Gly Leu Ile Ala Glu Leu Lys Ala Lys
 180 185 190

Asn Gly Ser Lys
 195

<210> 351
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 351
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- 8

<210> 352
 <211> 196
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 352
 Val Lys Lys Ser Ser Phe Ile Ser Ala Leu Gly Ile Gly Ile Leu Ser

1	5	10	15
Ile Gly Met	Ala Phe Ala Ser Pro	Ala Asp Ala Val Gly Gln Ile Arg	
20	25	30	
Gln Asn Ala Thr Gln Val Leu Thr Ile Leu Lys Ser Gly Asp Ala Ala			
35	40	45	
Ser Ala Arg Pro Lys Ala Glu Ala Tyr Ala Val Pro Tyr Phe Asp Phe			
50	55	60	
Gln Arg Met Thr Ala Leu Ala Val Gly Asn Pro Trp Arg Thr Ala Ser			
65	70	75	80
Asp Ala Gln Lys Gln Ala Leu Ala Lys Glu Phe Gln Thr Leu Leu Ile			
85	90	95	
Arg Thr Tyr Ser Gly Thr Met Leu Lys Phe Lys Asn Ala Thr Val Asn			
100	105	110	
Val Lys Asp Asn Pro Ile Val Asn Lys Gly Gly Lys Glu Ile Val Val			
115	120	125	
Arg Ala Glu Val Gly Ile Pro Gly Gln Lys Pro Val Asn Met Asp Phe			
130	135	140	
Thr Thr Tyr Gln Ser Gly Gly Lys Tyr Arg Thr Tyr Asn Val Ala Ile			
145	150	155	160
Glu Gly Thr Ser Leu Val Thr Val Tyr Arg Asn Gln Phe Gly Glu Ile			
165	170	175	
Ile Lys Ala Lys Gly Ile Asp Gly Leu Ile Ala Glu Leu Lys Ala Lys			
180	185	190	

Asn Gly Gly Lys
195

<210> 353
<211> 591
<212> DNA
<213> *Neisseria gonorrhoeae*

<400> 353	
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tttgctccc cggccgacgc agtgggacaa atccgccaaa acgccacaca ggttttgacc	120
atcctcaaaa gcggcgacgc ggcttctgca cgcccaaaag ccgaagccta tgcggttccc	180
tatttcgatt tccaacgtat gaccgcattg gcggtcggca acccttggcg taccgcgtcc	240
gacgcgcaaa aacaagcgtt ggccaaagaa tttcaaacc tgctgatccg cacctattcc	300
ggcacgatgc tgaaattcaa aaacgcgacc gtcaacgtca aagacaatcc catcgtcaat	360
aaggggcgga aggaaatcgt cgtccgtgcc gaagtcggca tccccgggtca gaagcccgtc	420
aatatggact ttaccaccta ccaaagcggc ggcaaatacc gtacctacaa cgtcggccatc	480
gaaggcacga gcctgggttac cgtgtaccgc aaccaattcg gcgaaatcat caaagccaaa	540
ggcatcgacg ggctgattgc cgagttgaaa gccaaaaacg gcggcaaata a	591

<210> 354

<211> 196
<212> PRT
<213> Neisseria gonorrhoeae

<400> 354

Met Lys Lys Ser Ser Phe Ile Ser Ala Leu Gly Ile Gly Ile Leu Ser
1 5 10 15

Ile Gly Met Ala Phe Ala Ser Pro Ala Asp Ala Val Gly Gln Ile Arg
20 25 30

Gln Asn Ala Thr Gln Val Leu Thr Ile Leu Lys Ser Gly Asp Ala Ala
35 40 45

Ser Ala Arg Pro Lys Ala Glu Ala Tyr Ala Val Pro Tyr Phe Asp Phe
50 55 60

Gln Arg Met Thr Ala Leu Ala Val Gly Asn Pro Trp Arg Thr Ala Ser
65 70 75 80

Asp Ala Gln Lys Gln Ala Leu Ala Lys Glu Phe Gln Thr Leu Leu Ile
85 90 95

Arg Thr Tyr Ser Gly Thr Met Leu Lys Phe Lys Asn Ala Thr Val Asn
100 105 110

Val Lys Asp Asn Pro Ile Val Asn Lys Gly Gly Lys Glu Ile Val Val
115 120 125

Arg Ala Glu Val Gly Ile Pro Gly Gln Lys Pro Val Asn Met Asp Phe
130 135 140

Thr Thr Tyr Gln Ser Gly Gly Lys Tyr Arg Thr Tyr Asn Val Ala Ile
145 150 155 160

Glu Gly Thr Ser Leu Val Thr Val Tyr Arg Asn Gln Phe Gly Glu Ile
165 170 175

Ile Lys Ala Lys Gly Ile Asp Gly Leu Ile Ala Glu Leu Lys Ala Lys
180 185 190

Asn Gly Gly Lys
195

<210> 355
<211> 480
<212> DNA
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (138)..(162)
<223> N= Unknown

<400> 355

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60

catcctgcca	gcgaaccgtc	cactcaaaac	gaaaccgcta	tgatcacgca	taccctcatc	120
tcaaaataca	gttttggnnn	nnnnnnnnnn	nnnnnnnnnn	nngccataaa	aagcaaaggg	180
atggacattt	ttgccgtcat	cgaccatcag	gaagccgcac	gccgaaacgg	cttaacgatg	240
cagccggcaa	aagtcacgt	cttcggcacg	cccaaagccg	gcacgccgct	gatggtcaaa	300
gaccccgct	tcgccctgca	actgccccta	cgcgtcctcg	ttaccgaaac	ggacggcaaa	360
gtacgcgccg	cctataccga	tacgcgcgcc	ctcatcgccg	gcagccgcat	cggtttcgac	420
gaagtggcaa	acactttggc	aaacgccgaa	aaactgatac	aaaaaacctg	aggcgaataa	480

<210> 356
 <211> 159
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (47)..(54)
 <223> Xaa= any amino acid

<400> 356
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 1 5 10 15
 Thr Ala Ser Ala His Pro Ala Ser Glu Pro Ser Thr Gln Asn Glu Thr
 20 25 30
 Ala Met Ile Thr His Thr Leu Ile Ser Lys Tyr Ser Phe Gly Xaa Xaa
 35 40 45
 Xaa Xaa Xaa Xaa Xaa Xaa Ala Ile Lys Ser Lys Gly Met Asp Ile Phe
 50 55 60
 Ala Val Ile Asp His Gln Glu Ala Ala Arg Arg Asn Gly Leu Thr Met
 65 70 75 80
 Gln Pro Ala Lys Val Ile Val Phe Gly Thr Pro Lys Ala Gly Thr Pro
 85 90 95
 Leu Met Val Lys Asp Pro Ala Phe Ala Leu Gln Leu Pro Leu Arg Val
 100 105 110
 Leu Val Thr Glu Thr Asp Gly Lys Val Arg Ala Ala Tyr Thr Asp Thr
 115 120 125
 Arg Ala Leu Ile Ala Gly Ser Arg Ile Gly Phe Asp Glu Val Ala Asn
 130 135 140
 Thr Leu Ala Asn Ala Glu Lys Leu Ile Gln Lys Thr Val Gly Glu
 145 150 155

<210> 357
 <211> 480
 <212> DNA
 <213> Neisseria meningitidis

<400> 357
 atgaaacaca tactccccct gattgccgca tccgcactct gcatttcaac cgcttcggca 60

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tcaaaataca	gttttgacga	aaccgtcagc	cgcttgaaa	ccgccataaa	aagcaaaggg	180
atggacattt	ttgccgtcat	cgaccatcag	gaagccgcc	gccgaaacgg	cttaacgatg	240
cagccggcaa	aagtcacgt	cttcggcagc	cccaaagccg	gcacgccgct	gatggtcaaa	300
gaccccgct	tgccttgca	actgccccta	cgcgtcctcg	ttaccgaaac	ggacggcaaa	360
gtacgcgcgc	cctataccga	tacgcgcgcc	ctcatcgcc	gcagccgcac	cggtttcgac	420
gaagtggcaa	acactttggc	aaacgccgaa	aaactgtacg	aaaaaacctg	aggcgaataa	480

<400> 358

Thr Ala Ser Ala His Pro Ala Ser Glu Pro Ser Thr Gln Asn Glu Thr
20 25 30

Val Ser Arg Leu Glu Thr Ala Ile Lys Ser Lys Gly Met Asp Ile Phe
50 55 60

Gln Pro Ala Lys Val Ile Val Phe Gly Thr Pro Lys Ala Gly Thr Pro
85 90 95

Leu Val Thr Glu Thr Asp Gly Lys Val Arg Ala Ala Tyr Thr Asp Thr
115 120 125

Thr Leu Ala Asn Ala Glu Lys Leu Ile Gln Lys Thr Val Gly Glu
145 150 155

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<223> N= Unknown
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<222> (23)..(23)

<223> N= Unknown

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<222> (26)..(26)

<223> N= Unknown

<220>

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<222> (337)..(337)

<223> N= Unknown

<400> 359

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catcctgcc	ggaaccgca	aacccaaaac	gaaaccgcta	tgaccacgca	tacctcacc	120
tcaaaatata	gttttgacga	aaccgtcagc	cgccttgaaa	ccgccataaa	aagcaaaggg	180
atggacattt	ttgccgtcat	cgaccatcag	gaagccgccc	gccgaaacgg	cttaacgatg	240
cagccggcaa	aagtcatcgt	cttcggcacg	cccaaagccg	gtacgcgcgt	gatgggtcaaa	300
gaccccgctt	tcgccctgca	actgcccctg	cgcgtcntcg	ttaccgaaac	ggacgggcaa	360
gtacgcgcgg	cctataccga	tacgcgcgcc	ctcatcgccg	gcagccgcat	cggtttcgac	420
gaagtggcaa	acactttggc	aaacgccgaa	aaactgatac	aaaaaaccat	aggcgaataa	480

<210> 360

<211> 159

<212> PRT

<213> Neisseria meningitidis

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<223> Xaa= any amino acid

<220>

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<222> (8)..(9)

<223> Xaa= any amino acid

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<223> Xaa= any amino acid

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<223> Xaa= any amino acid

<400> 360

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Thr Ala Ser Xaa His Pro Ala Ser Glu Pro Gln Thr Gln Asn Glu Thr
 20 25 30
 Ala Met Thr Thr His Thr Leu Thr Ser Lys Tyr Ser Phe Asp Glu Thr
 35 40 45
 Val Ser Arg Leu Glu Thr Ala Ile Lys Ser Lys Gly Met Asp Ile Phe
 50 55 60
 Ala Val Ile Asp His Gln Glu Ala Ala Arg Arg Asn Gly Leu Thr Met
 65 70 75 80
 Gln Pro Ala Lys Val Ile Val Phe Gly Thr Pro Lys Ala Gly Thr Pro
 85 90 95
 Leu Met Val Lys Asp Pro Ala Phe Ala Leu Gln Leu Pro Leu Arg Val
 100 105 110
 Xaa Val Thr Glu Thr Asp Gly Lys Val Arg Ala Ala Tyr Thr Asp Thr
 115 120 125
 Arg Ala Leu Ile Ala Gly Ser Arg Ile Gly Phe Asp Glu Val Ala Asn
 130 135 140
 Thr Leu Ala Asn Ala Glu Lys Leu Ile Gln Lys Thr Ile Gly Glu
 145 150 155

<210> 361
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
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 <223> N= Unknown

<400> 361
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8

<210> 362
 <211> 159
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 362
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 1 5 10 15
 Thr Ala Ser Ala His Pro Ala Gly Lys Pro Pro Thr Gln Asn Glu Thr
 20 25 30
 Ala Met Thr Thr His Thr Leu Thr Ser Lys Tyr Ser Phe Asp Glu Thr
 35 40 45
 Val Ser Arg Leu Glu Thr Ala Ile Lys Ser Lys Gly Met Asp Ile Phe

50

55

60

Ala Val Ile Asp His Gln Glu Ala Ala Arg Arg Asn Gly Leu Thr Met
65 70 75 80

Gln Pro Ala Lys Val Ile Val Phe Gly Thr Pro Lys Ala Gly Thr Pro
85 90 95

Leu Met Val Lys Asp Pro Ala Phe Ala Leu Gln Leu Pro Leu Arg Val
100 105 110

Leu Val Thr Glu Thr Asp Gly Lys Val Arg Thr Ala Tyr Thr Asp Thr
115 120 125

Arg Ala Leu Ile Val Gly Ser Arg Ile Ser Phe Asp Glu Val Ala Asn
130 135 140

Thr Leu Ala Asn Ala Glu Lys Leu Ile Gln Lys Thr Val Gly Glu
145 150 155

<210> 363

<211> 480

<212> DNA

<213> Neisseria gonorrhoeae

<400> 363

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tcgaaatata	gttttgacga	aaccgtcagc	cgccttgaaa	ccgccataaa	aagcaaaggg	180
atggacattt	ttgcgcgtcat	cgaccatcag	gaagcggcac	gccgaaacgg	cctgaccatg	240
cagccggcaa	aagtcacgt	cttcggcacg	cccaaggccg	gtacgcgcgt	gatgggtcaaa	300
gacccgcct	tcgccctgca	actgcccctg	cgcgtcctcg	ttaccgaaac	ggacgggcaaa	360
gtacgcaccg	cctataccga	tacgcgcgcc	ctcatcgctg	gcagccgcgt	cagtttcgac	420
gaagtggcaa	acactttggc	aaacgcgcgaa	aaactgatac	aaaaaaccgt	aggcgaataa	480

<210> 364

<211> 159

<212> PRT

<213> Neisseria gonorrhoeae

<400> 364

Met Lys His Ile Leu Pro Leu Ile Ala Ala Ser Ala Leu Cys Ile Ser
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Thr Ala Ser Ala His Pro Ala Gly Lys Pro Pro Thr Gln Asn Glu Thr
20 25 30

Ala Met Thr Thr His Thr Leu Thr Ser Lys Tyr Ser Phe Asp Glu Thr
35 40 45

Val Ser Arg Leu Glu Thr Ala Ile Lys Ser Lys Gly Met Asp Ile Phe
50 55 60

Ala Val Ile Asp His Gln Glu Ala Ala Arg Arg Asn Gly Leu Thr Met
65 70 75 80

Gln Pro Ala Lys Val Ile Val Phe Gly Thr Pro Lys Ala Gly Thr Pro
85 90 95

Leu Met Val Lys Asp Pro Ala Phe Ala Leu Gln Leu Pro Leu Arg Val
100 105 110

Leu Val Thr Glu Thr Asp Gly Lys Val Arg Thr Ala Tyr Thr Asp Thr
115 120 125

Arg Ala Leu Ile Val Gly Ser Arg Ile Ser Phe Asp Glu Val Ala Asn
130 135 140

Thr Leu Ala Asn Ala Glu Lys Leu Ile Gln Lys Thr Val Gly Glu
145 150 155

<210> 365

<211> 597

<212> DNA

<213> Neisseria meningitidis

<400> 365

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cccgcctttc	agaatgtggc	ggcggagggg	atagatgtga	gccgtgccga	agcgaggata	120
accgacggcg	ggcagctttc	catcagcagc	cgcttccaaa	ccgagctgcc	cgaccagctc	180
caacaggcgt	tgcgccgggg	cgtgccgctc	aactttacct	taagctggca	gctttccgcc	240
ccgataatcg	cttcttatcg	gtttaaattg	gggcaactga	ttggcgatga	cgacaatatt	300
gactacaaac	tgagtttcca	tccgctgacc	aaacgctacc	gcgttaccgt	cggcgcggtt	360
tcgacagact	acgacacctt	ggatgcggca	ttgcgcgcga	ccggcgcggt	tgccaactgg	420
aaagtccctga	acaaaggcgc	gctgtccggt	gcggaagcag	gggaaaccaa	ggcggaatc	480
cgcttgacgc	tgtccacttc	aaaactgccc	aagccttttc	aaatcaatgc	attgacttct	540
caaaactggc	atttggattc	gggttggaaa	cctctaaaca	tcacggggaa	caaataa	597

<210> 366

<211> 198

<212> PRT

<213> Neisseria meningitidis

<400> 366

Met Ala Phe Ile Thr Arg Leu Phe Lys Ser Ser Lys Trp Leu Ile Val
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Pro Leu Met Leu Pro Ala Phe Gln Asn Val Ala Ala Glu Gly Ile Asp
20 25 30

Val Ser Arg Ala Glu Ala Arg Ile Thr Asp Gly Gly Gln Leu Ser Ile
35 40 45

Ser Ser Arg Phe Gln Thr Glu Leu Pro Asp Gln Leu Gln Gln Ala Leu
50 55 60

Arg Arg Gly Val Pro Leu Asn Phe Thr Leu Ser Trp Gln Leu Ser Ala
65 70 75 80

Pro Ile Ile Ala Ser Tyr Arg Phe Lys Leu Gly Gln Leu Ile Gly Asp
85 90 95

Asp Asp Asn Ile Asp Tyr Lys Leu Ser Phe His Pro Leu Thr Lys Arg
 100 105 110
 Tyr Arg Val Thr Val Gly Ala Phe Ser Thr Asp Tyr Asp Thr Leu Asp
 115 120 125
 Ala Ala Leu Arg Ala Thr Gly Ala Val Ala Asn Trp Lys Val Leu Asn
 130 135 140
 Lys Gly Ala Leu Ser Gly Ala Glu Ala Gly Glu Thr Lys Ala Glu Ile
 145 150 155 160
 Arg Leu Thr Leu Ser Thr Ser Lys Leu Pro Lys Pro Phe Gln Ile Asn
 165 170 175
 Ala Leu Thr Ser Gln Asn Trp His Leu Asp Ser Gly Trp Lys Pro Leu
 180 185 190
 Asn Ile Ile Gly Asn Lys
 195

<210> 367
 <211> 597
 <212> DNA
 <213> Neisseria meningitidis

<400> 367
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 accgacggcg ggcagctttc catcagcagc cgcttccaaa ccgagctgcc cgaccagctc 180
 caacaggcgt tgcgcggggg cgtgccgctc aactttacct taagctggca gctttccgcc 240
 ccgataatcg cttcttatcg gtttaaattg gggcaactga ttggcgatga cgacaatatt 300
 gactacaaac tgagtttcca tccgctgacc aaccgctacc gcgttaccgt cggcgcgctt 360
 tcgacagact acgacacctt ggatgcggca ttgcgcgcga ccggcgcggt tgccaactgg 420
 aaagtcctga acaaaggcgc gctgtccggt gcggaagcag gggaaaccaa ggcggaaatc 480
 cgctgacgc tgtccacttc aaaactgccc aagccttttc aaatcaatgc attgacttct 540
 caaaactggc atttggattc gggttggaaa cctctaaca tcatcgggaa caaataa 597

<210> 368
 <211> 198
 <212> PRT
 <213> Neisseria meningitidis

<400> 368
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 Pro Leu Met Leu Pro Ala Phe Gln Asn Val Ala Ala Glu Gly Ile Asp
 20 25 30
 Val Ser Arg Ala Glu Ala Arg Ile Thr Asp Gly Gly Gln Leu Ser Ile
 35 40 45
 Ser Ser Arg Phe Gln Thr Glu Leu Pro Asp Gln Leu Gln Gln Ala Leu
 50 55 60

Arg	Arg	Gly	Val	Pro	Leu	Asn	Phe	Thr	Leu	Ser	Trp	Gln	Leu	Ser	Ala
65					70					75					80
Pro	Ile	Ile	Ala	Ser	Tyr	Arg	Phe	Lys	Leu	Gly	Gln	Leu	Ile	Gly	Asp
				85					90					95	
Asp	Asp	Asn	Ile	Asp	Tyr	Lys	Leu	Ser	Phe	His	Pro	Leu	Thr	Asn	Arg
			100					105					110		
Tyr	Arg	Val	Thr	Val	Gly	Ala	Phe	Ser	Thr	Asp	Tyr	Asp	Thr	Leu	Asp
		115					120					125			
Ala	Ala	Leu	Arg	Ala	Thr	Gly	Ala	Val	Ala	Asn	Trp	Lys	Val	Leu	Asn
	130					135					140				
Lys	Gly	Ala	Leu	Ser	Gly	Ala	Glu	Ala	Gly	Glu	Thr	Lys	Ala	Glu	Ile
145					150					155					160
Arg	Leu	Thr	Leu	Ser	Thr	Ser	Lys	Leu	Pro	Lys	Pro	Phe	Gln	Ile	Asn
				165					170					175	
Ala	Leu	Thr	Ser	Gln	Asn	Trp	His	Leu	Asp	Ser	Gly	Trp	Lys	Pro	Leu
			180					185					190		
Asn	Ile	Ile	Gly	Asn	Lys										
			195												

<210> 369
 <211> 600
 <212> DNA
 <213> Neisseria meningitidis

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 <223> N= Unknown

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 <223> N= Unknown

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 <223> N= Unknown

<220>
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 <223> N= Unknown

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 <223> N= Unknown

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 <223> N= Unknown

<220>
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 <223> N= Unknown

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 <223> N= Unknown

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 <222> (228)..(228)
 <223> N= Unknown

<220>
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 <222> (268)..(268)
 <223> N= Unknown

<220>
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 <222> (298)..(298)
 <223> N= Unknown

<220>
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 <222> (372)..(372)
 <223> N= Unknown

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 ataancgacg gcgggcagct ttccatnagn agccgcttcc aaaccgagct gcccgaccag 180
 ctccaannng cgnngngccg gggcgtgncg ctcaactnta ccttaagntg gcagctttcc 240
 gccccgataa tcgcttctta tcggtttnaa ttggggcaac tgattggcga tgacgacnat 300
 attgactaca aactgagttt ccatccgctg accaaccgct accgcgttac cgtcggcgcg 360
 ttttcgacag antacgacac cttggatgcg gcattgcgcg cgaccggcgc ggttgccaac 420
 tggaaagtcc tgaacaaagg cgcgctgtcc ggtgcggaag caggggaaac caaggcggaa 480
 atccgcctga cgctgtccac ttcaaaactg cccaagcctt ttcâaatcaa tgcattgact 540
 tctcaaaact ggcatttggg ttcgggttgg aaacctctaa acatcatcgg gaacaaataa 600

<210> 370
 <211> 199
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (42)..(42)
 <223> Xaa= any amino acid

<220>
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 <222> (49)..(50)
 <223> Xaa= any amino acid

<220>
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 <222> (63)..(63)
 <223> Xaa= any amino acid

<220>
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 <222> (65)..(66)
 <223> Xaa= any amino acid

<220>
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 <222> (70)..(70)
 <223> Xaa= any amino acid

<220>
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 <222> (73)..(73)
 <223> Xaa= any amino acid

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 <222> (76)..(76)
 <223> Xaa= any amino acid

<220>
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 <222> (90)..(90)
 <223> Xaa= any amino acid

<220>
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 <222> (100)..(100)
 <223> Xaa= any amino acid

<220>
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 <222> (124)..(124)
 <223> Xaa= any amino acid

<400> 370
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 1 5 10 15
 Leu Leu Pro Met Leu Ser Val Leu Pro Asp Ala Ala Ala Glu Gly Ile
 20 25 30
 Asp Val Ser Arg Ala Glu Ala Arg Ile Xaa Asp Gly Gly Gln Leu Ser
 35 40 45
 Xaa Xaa Ser Arg Phe Gln Thr Glu Leu Pro Asp Gln Leu Gln Xaa Ala

50

55

60

Xaa Xaa Arg Gly Val Xaa Leu Asn Xaa Thr Leu Xaa Trp Gln Leu Ser
65 70 75 80

Ala Pro Ile Ile Ala Ser Tyr Arg Phe Xaa Leu Gly Gln Leu Ile Gly
85 90 95

Asp Asp Asp Xaa Ile Asp Tyr Lys Leu Ser Phe His Pro Leu Thr Asn
100 105 110

Arg Tyr Arg Val Thr Val Gly Ala Phe Ser Thr Xaa Tyr Asp Thr Leu
115 120 125

Asp Ala Ala Leu Arg Ala Thr Gly Ala Val Ala Asn Trp Lys Val Leu
130 135 140

Asn Lys Gly Ala Leu Ser Gly Ala Glu Ala Gly Glu Thr Lys Ala Glu
145 150 155 160

Ile Arg Leu Thr Leu Ser Thr Ser Lys Leu Pro Lys Pro Phe Gln Ile
165 170 175

Asn Ala Leu Thr Ser Gln Asn Trp His Leu Asp Ser Gly Trp Lys Pro
180 185 190

Leu Asn Ile Ile Gly Asn Lys
195

<210> 371

<211> 600

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 371

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ataaccgacg	gcgggcggct	ttccatcagc	agccgcttcc	aaaccgagct	gcccgaccag	180
ctccaacagg	cgttgcgccg	gggcgtaccg	ctcaacttta	ccttaagctg	gcagctttcc	240
gccccgacaa	tcgcttctta	tcggtttaaa	ttggggcaac	tgattggcga	tgacgacaat	300
attgactaca	aactaagttt	ccatccgctg	accaaccgct	accgcgttac	cgtcggcgca	360
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tggaagtc	tgaacaaagg	cgcgttgtcc	ggtgcggaag	caggggaaac	caaggcgga	480
atccgcctga	cgctgtccac	ttcaaaactg	cccaagcctt	tccaaatcaa	cgcattgact	540
tctcaaaact	ggcatttgga	ttcgggttgg	aaacctctaa	acatcatcgg	gaacaaataa	600

<210> 372

<211> 199

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 372

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20

25

30

Ala Ala Thr Arg Ala Glu Ala Arg Ile Thr Asp Gly Gly Arg Leu Ser
35 40 45

Ile Ser Ser Arg Phe Gln Thr Glu Leu Pro Asp Gln Leu Gln Gln Ala
50 55 60

Leu Arg Arg Gly Val Pro Leu Asn Phe Thr Leu Ser Trp Gln Leu Ser
65 70 75 80

Ala Pro Thr Ile Ala Ser Tyr Arg Phe Lys Leu Gly Gln Leu Ile Gly
85 90 95

Asp Asp Asp Asn Ile Asp Tyr Lys Leu Ser Phe His Pro Leu Thr Asn
100 105 110

Arg Tyr Arg Val Thr Val Gly Ala Phe Ser Thr Asp Tyr Asp Thr Leu
115 120 125

Asp Ala Ala Leu Arg Ala Thr Gly Ala Val Ala Asn Trp Lys Val Leu
130 135 140

Asn Lys Gly Ala Leu Ser Gly Ala Glu Ala Gly Glu Thr Lys Ala Glu
145 150 155 160

Ile Arg Leu Thr Leu Ser Thr Ser Lys Leu Pro Lys Pro Phe Gln Ile
165 170 175

Asn Ala Leu Thr Ser Gln Asn Trp His Leu Asp Ser Gly Trp Lys Pro
180 185 190

Leu Asn Ile Ile Gly Asn Lys
195

<210> 373

<211> 1419

<212> DNA

<213> Neisseria meningitidis

<400> 373

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tgatgcagac	ggcggcgggg	ctgacggtgt	cgggtgtgtg	cctcgggctg	gatcaggcat	180
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cgcgctgct	gtctgccgcc	gcgatagccg	ccctgctgct	ttcccgcccg	tccctgccgt	300
ctgaaatcct	gttttctctc	gacgatgccg	ccgccggcat	cgggctggtg	ctgtttgaac	360
tgagcttct	gcccatecgc	tttctcttac	tggttttgcg	tatggaagga	cgcgcccttg	420
ccttttcgtc	cgcgcaactc	gtgcccgaagc	tcgccatcct	gctgctgtgc	cgtgacgggt	480
cgggctgctg	cactttccag	cgaacaccgc	cgtcctgacc	gccgtttacg	cgtggcaaaa	540
ccttgccgcc	gccgcctttt	tgctgtttca	aaaccgatgc	cgtctgaagg	ccgtccggca	600
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agcagcatcg	cctattgggg	gctggcatcc	gccgaccgtt	tgttcctgaa	aaaatatgcc	720
ggcctggaac	agctcggcgt	ttattcgatg	ggtatttcgt	tcggcggggc	ggcattattg	780
ttccaaagca	tccttttcaac	ggtctggaca	ccgtatatatt	tccgcgcaat	cgaagaaaac	840
gccccgcccc	ctcgcctctc	ggcaacggca	gaatccgcgc	ccgcctgct	tgctccgc	900

ctctgctgac	cggcattttc	tcgccccttg	cctccctect	gctgcccggaa	aactacgccg	960
ccgtccggtt	tatcgtcgta	tcgtgtatgt	gccgcgctg	ttttgcacgc	tggcggaaat	1020
cagcggcatc	ggtttgaacg	tcgttcgcaa	aacgcgcgcg	atcgcgctcg	ccaccttggg	1080
cgcgctggcg	gcaaacctgc	tgctgctggg	gcttgaccgt	gccgtaccgg	cgaggccgcc	1140
ggcgcggcgg	ttgcctgtgc	cgccctcatte	tggtgtttt	ttgccttcaa	gaccgaaaagc	1200
tcytgccgcc	tgtggcagcc	gctcaaacgc	ctgccgcttt	atctgcacac	attgttctgc	1260
ctgacctcct	cggcggccta	cacctgcttc	ggcacgccgg	caaactatcc	cctgtttgcc	1320
ggcgtatggg	cggcatatct	ggcaggctgc	atcctgcgcc	accggaaaaga	tttgcacaaa	1380
ctgtttcatt	atttgaaaaa	acaaggtttc	ccattatga			1419

<210> 374
 <211> 474
 <212> PRT
 <213> *Neisseria meningitidis*

<220>
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 <223> Xaa= any amino acid

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 <222> (157)..(157)
 <223> Xaa= any amino acid

<220>
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 <222> (213)..(213)
 <223> Xaa= any amino acid

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 <222> (304)..(304)
 <223> Xaa= any amino acid

<220>
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 <222> (332)..(332)
 <223> Xaa= any amino acid

<220>
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 <223> Xaa= any amino acid

<400> 374
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 20 25 30
 Ala Asp Asp Ile Gly Arg Ile Val Leu Met Gln Thr Ala Ala Gly Leu
 35 40 45
 Thr Val Ser Val Leu Cys Leu Gly Leu Asp Gln Ala Tyr Val Arg Glu

50	55	60
Tyr Tyr Ala Thr Ala Asp Lys Asp Thr Leu Phe Lys Thr Leu Phe Leu 65 70 75 80		
Pro Pro Leu Leu Ser Ala Ala Ala Ile Ala Ala Leu Leu Leu Ser Arg 85 90 95		
Pro Ser Leu Pro Ser Glu Ile Leu Phe Ser Leu Asp Asp Ala Ala Ala 100 105 110		
Gly Ile Gly Leu Val Leu Phe Glu Leu Ser Phe Leu Pro Ile Arg Phe 115 120 125		
Leu Leu Leu Val Leu Arg Met Glu Gly Arg Ala Leu Ala Phe Ser Ser 130 135 140		
Ala Gln Leu Val Pro Lys Leu Ala Ile Leu Leu Leu Xaa Pro Leu Thr 145 150 155 160		
Val Gly Leu Leu His Phe Pro Ala Asn Thr Ala Val Leu Thr Ala Val 165 170 175		
Tyr Ala Leu Ala Asn Leu Ala Ala Ala Ala Phe Leu Leu Phe Gln Asn 180 185 190		
Arg Cys Arg Leu Lys Ala Val Arg His Ala Pro Phe Ser Pro Ala Val 195 200 205		
Leu His Arg Gly Xaa Arg Tyr Gly Ile Pro Ile Ala Leu Ser Ser Ile 210 215 220		
Ala Tyr Trp Gly Leu Ala Ser Ala Asp Arg Leu Phe Leu Lys Lys Tyr 225 230 235 240		
Ala Gly Leu Glu Gln Leu Gly Val Tyr Ser Met Gly Ile Ser Phe Gly 245 250 255		
Gly Ala Ala Leu Leu Phe Gln Ser Ile Phe Ser Thr Val Trp Thr Pro 260 265 270		
Tyr Ile Phe Arg Ala Ile Glu Glu Asn Ala Pro Pro Ala Arg Leu Ser 275 280 285		
Ala Thr Ala Glu Ser Ala Ala Ala Leu Leu Ala Ser Ala Leu Cys Xaa 290 295 300		
Thr Gly Ile Phe Ser Pro Leu Ala Ser Leu Leu Leu Pro Glu Asn Tyr 305 310 315 320		
Ala Ala Val Arg Phe Ile Val Val Ser Cys Met Xaa Pro Pro Leu Phe 325 330 335		
Cys Thr Leu Ala Glu Ile Ser Gly Ile Gly Leu Asn Val Val Arg Lys 340 345 350		

Thr Arg Pro Ile Ala Leu Ala Thr Leu Gly Ala Leu Ala Ala Asn Leu
355 360 365

Leu Leu Leu Gly Leu Asp Arg Ala Val Pro Ala Arg Pro Xaa Gly Ala
370 375 380

Ala Val Ala Cys Ala Ala Ser Phe Trp Leu Phe Phe Ala Phe Lys Thr
385 390 395 400

Glu Ser Ser Cys Arg Leu Trp Gln Pro Leu Lys Arg Leu Pro Leu Tyr
405 410 415

Leu His Thr Leu Phe Cys Leu Thr Ser Ser Ala Ala Tyr Thr Cys Phe
420 425 430

Gly Thr Pro Ala Asn Tyr Pro Leu Phe Ala Gly Val Trp Ala Ala Tyr
435 440 445

Leu Ala Gly Cys Ile Leu Arg His Arg Lys Asp Leu His Lys Leu Phe
450 455 460

His Tyr Leu Lys Lys Gln Gly Phe Pro Leu
465 470

<210> 375

<211> 1422

<212> DNA

<213> *Neisseria meningitidis*

<400> 375

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ctgatgcaga	cggcggcg	gctgacgggtg	tgggtgtgtg	gcctcgggct	ggatcaggca	180
tacgtccgcg	aatactatgc	caccgcccac	aaagacacct	tgttcaaaac	cctgttcctg	240
cgccgctgc	tgtctgccgc	cgcatagacc	gccctgctgc	tttccgcgcc	gtccctgccg	300
tctgaaatcc	tgttttcact	cgacgatgcc	gccgcgggca	tgggctggt	gctgtttgaa	360
ctgagcttcc	tgcccatccg	ctttctctta	ctgcccattc	tgctgctgct	gccgctgacg	420
gccttttctg	ccgcgcaact	cgtgcccagg	ctgcctatcc	tgctgctgct	gccgctgacg	480
gtcgggctgc	tgcactttcc	agcgaacacc	gccgtcctga	ccgcggttta	cgcgctggca	540
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ctgagcagca	tcgcctattg	ggggctggca	tccgccgacc	gtttgttcc	gaaaaaatat	720
gccggcctgg	aacagctcgg	cgtttatctg	atgggtat	cgttcggcgg	ggcggcatta	780
ttgttccaaa	gcattctttc	aacgggtctg	acaccgtata	ttttccgcgc	aatcgaagaa	840
aacgccccgc	ccgcccgcct	ctcggcaacg	gcagaatccg	ccgcccgcct	gcttgccctc	900
gccctctgcc	tgaccggcat	tttctcgccc	cttgccctcc	tctgctgccc	ggaaaactac	960
gccgcccgtc	ggtttatcgt	cgtatcgtgt	atgctgccgc	cgctgttttg	cacgctggcg	1020
gaaatcagcg	gcacgggttt	gaacgtcgtc	cgcaaaacgc	gcccgatcgc	gctcgccacc	1080
ttgggcgcgc	tggcggcaaa	cctgctgctg	ctggggcttg	ccgtgccgtc	cggcggcgcg	1140
cgcggcgcgg	cggttgcctg	tgccgcctca	ttctggctgt	tttttgctt	caagaccgaa	1200
agctcctgcc	gcctgtggca	gccgtcaaa	cgctgccgc	tttatctgca	cacattgttc	1260
tgcctgacct	cctcggcggc	ctacacctgc	ttcggcacgc	cggcaaaacta	tcccctgttt	1320
gccggcggtat	gggcggcata	tctggcaggc	tgcattctgc	gccaccggaa	agatttgcac	1380
aaactgtttc	attatttgaa	aaaacaaggt	ttcccattat	ga		1422

<210> 376

<211> 473
<212> PRT
<213> Neisseria meningitidis

<400> 376

Met	Asp	Thr	Lys	Glu	Ile	Leu	Gly	Tyr	Ala	Ala	Gly	Ser	Ile	Gly	Ser
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Ala	Val	Leu	Ala	Val	Ile	Ile	Leu	Pro	Leu	Leu	Ser	Trp	Tyr	Phe	Pro
			20					25					30		
Ala	Asp	Asp	Ile	Gly	Arg	Ile	Val	Leu	Met	Gln	Thr	Ala	Ala	Gly	Leu
			35				40					45			
Thr	Val	Ser	Val	Leu	Cys	Leu	Gly	Leu	Asp	Gln	Ala	Tyr	Val	Arg	Glu
	50					55					60				
Tyr	Tyr	Ala	Thr	Ala	Asp	Lys	Asp	Thr	Leu	Phe	Lys	Thr	Leu	Phe	Leu
65					70					75					80
Pro	Pro	Leu	Leu	Ser	Ala	Ala	Ala	Ile	Ala	Ala	Leu	Leu	Leu	Ser	Arg
				85					90					95	
Pro	Ser	Leu	Pro	Ser	Glu	Ile	Leu	Phe	Ser	Leu	Asp	Asp	Ala	Ala	Ala
			100					105					110		
Gly	Ile	Gly	Leu	Val	Leu	Phe	Glu	Leu	Ser	Phe	Leu	Pro	Ile	Arg	Phe
			115				120					125			
Leu	Leu	Leu	Val	Leu	Arg	Met	Glu	Gly	Arg	Ala	Leu	Ala	Phe	Ser	Ser
			130			135					140				
Ala	Gln	Leu	Val	Pro	Lys	Leu	Ala	Ile	Leu	Leu	Leu	Leu	Pro	Leu	Thr
145					150					155					160
Val	Gly	Leu	Leu	His	Phe	Pro	Ala	Asn	Thr	Ala	Val	Leu	Thr	Ala	Val
				165					170					175	
Tyr	Ala	Leu	Ala	Asn	Leu	Ala	Ala	Ala	Ala	Phe	Leu	Leu	Phe	Gln	Asn
			180					185					190		
Arg	Cys	Arg	Leu	Lys	Ala	Val	Arg	His	Ala	Pro	Phe	Ser	Pro	Ala	Val
			195				200					205			
Leu	His	Arg	Gly	Leu	Arg	Tyr	Gly	Ile	Pro	Ile	Ala	Leu	Ser	Ser	Ile
	210					215					220				
Ala	Tyr	Trp	Gly	Leu	Ala	Ser	Ala	Asp	Arg	Leu	Phe	Leu	Lys	Lys	Tyr
225				230						235					240
Ala	Gly	Leu	Glu	Gln	Leu	Gly	Val	Tyr	Ser	Met	Gly	Ile	Ser	Phe	Gly
				245					250					255	
Gly	Ala	Ala	Leu	Leu	Phe	Gln	Ser	Ile	Phe	Ser	Thr	Val	Trp	Thr	Pro
			260					265					270		

Tyr Ile Phe Arg Ala Ile Glu Glu Asn Ala Pro Pro Ala Arg Leu Ser
 275 280 285
 Ala Thr Ala Glu Ser Ala Ala Ala Leu Leu Ala Ser Ala Leu Cys Leu
 290 295 300
 Thr Gly Ile Phe Ser Pro Leu Ala Ser Leu Leu Leu Pro Glu Asn Tyr
 305 310 315 320
 Ala Ala Val Arg Phe Ile Val Val Ser Cys Met Leu Pro Pro Leu Phe
 325 330 335
 Cys Thr Leu Ala Glu Ile Ser Gly Ile Gly Leu Asn Val Val Arg Lys
 340 345 350
 Thr Arg Pro Ile Ala Leu Ala Thr Leu Gly Ala Leu Ala Ala Asn Leu
 355 360 365
 Leu Leu Leu Gly Leu Ala Val Pro Ser Gly Gly Ala Arg Gly Ala Ala
 370 375 380
 Val Ala Cys Ala Ala Ser Phe Trp Leu Phe Phe Ala Phe Lys Thr Glu
 385 390 395 400
 Ser Ser Cys Arg Leu Trp Gln Pro Leu Lys Arg Leu Pro Leu Tyr Leu
 405 410 415
 His Thr Leu Phe Cys Leu Thr Ser Ser Ala Ala Tyr Thr Cys Phe Gly
 420 425 430
 Thr Pro Ala Asn Tyr Pro Leu Phe Ala Gly Val Trp Ala Ala Tyr Leu
 435 440 445
 Ala Gly Cys Ile Leu Arg His Arg Lys Asp Leu His Lys Leu Phe His
 450 455 460
 Tyr Leu Lys Lys Gln Gly Phe Pro Leu
 465 470

<210> 377
 <211> 1422
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 377
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 gtcacatcc tgcgctgct gtcgtggtat ttccctgccg acgacatcgg acgcatcgtg 120
 ctgatgcaga cggcggcggg gctgacggtg tcggtgttgt gcctcgggct ggatcaggca 180
 tacgtccgcg aatactatgc cgccgccgac aaagacactt tgttcaaaac cctgttctctg 240
 ccgccgctgc tgtctgccgc cgcgatagcc gccctgctgc tttcccgccc atccctgccg 300
 tctgaaatcc tgttttcgct cgacgatgcc gccgcggcga tcgggctggt gctgtttgaa 360
 ctgagcttcc tgcccatccg ctttctctta ctggttttgc gtatggaagg acgcgccctt 420
 gccttttcgt ccgcgcaact cgtgtccaag ctgcgccatcc tgctgctgct gccgctgacg 480
 gtcgggctgc tgcactttcc ggcaaacacc gccgtcctga ccgccgttta cgcgctggca 540
 aaccttgccg ccgccgcctt tttgctgttt caaaaccgat gccgtctgaa ggccgtccgg 600
 cgcgcacctg tttcatccgc cgtcctgcat cgcggcctgc gctacggcat accgatcgca 660

ctaagcagca	tcgcctattg	ggggctggca	tccgccgacc	gtttgttcct	gaaaaaatat	720
gccggcctag	aacagctcgg	cgtttattcg	atgggtat	cgttcggcgg	agcggcatta	780
ttgttccaaa	gcattctttc	aacggctctg	acaccgtata	ttttccgcgc	aatcgaagca	840
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gccctctgcc	tgaccggcat	tttctcgccc	ctcgccctcc	tcctgctgcc	ggaaaaactac	960
gccgcgcgtc	ggtttatcgt	cgatcgtgt	atgctgcctc	cgctgttttg	cacgctggta	1020
gaaatcagcg	gcacgggttt	gaacgtcgtc	cgaaaaacac	gcccgatcgc	gctcggccacc	1080
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tgccctggcct	cctcgggcgc	ctacacctgc	tccggcactc	cggcaacta	ccccctgttt	1320
gccggcgat	gggcgggtata	tctggcaggg	tgcatcctgc	gccaccggaa	agatttgcac	1380
aaactgtttc	attatttgaa	aaaacaaggt	ttcccattat	ga		1422

<210> 378
 <211> 473
 <212> PRT
 <213> Neisseria meningitidis

<400> 378
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 Ala Asp Asp Ile Gly Arg Ile Val Leu Met Gln Thr Ala Ala Gly Leu
 35 40 45
 Thr Val Ser Val Leu Cys Leu Gly Leu Asp Gln Ala Tyr Val Arg Glu
 50 55 60
 Tyr Tyr Ala Ala Ala Asp Lys Asp Thr Leu Phe Lys Thr Leu Phe Leu
 65 70 75 80
 Pro Pro Leu Leu Ser Ala Ala Ala Ile Ala Ala Leu Leu Leu Ser Arg
 85 90 95
 Pro Ser Leu Pro Ser Glu Ile Leu Phe Ser Leu Asp Asp Ala Ala Ala
 100 105 110
 Gly Ile Gly Leu Val Leu Phe Glu Leu Ser Phe Leu Pro Ile Arg Phe
 115 120 125
 Leu Leu Leu Val Leu Arg Met Glu Gly Arg Ala Leu Ala Phe Ser Ser
 130 135 140
 Ala Gln Leu Val Ser Lys Leu Ala Ile Leu Leu Leu Leu Pro Leu Thr
 145 150 155 160
 Val Gly Leu Leu His Phe Pro Ala Asn Thr Ala Val Leu Thr Ala Val
 165 170 175
 Tyr Ala Leu Ala Asn Leu Ala Ala Ala Ala Phe Leu Leu Phe Gln Asn
 180 185 190

Arg Cys Arg Leu Lys Ala Val Arg Arg Ala Pro Phe Ser Ser Ala Val
 195 200 205
 Leu His Arg Gly Leu Arg Tyr Gly Ile Pro Ile Ala Leu Ser Ser Ile
 210 215 220
 Ala Tyr Trp Gly Leu Ala Ser Ala Asp Arg Leu Phe Leu Lys Lys Tyr
 225 230 235 240
 Ala Gly Leu Glu Gln Leu Gly Val Tyr Ser Met Gly Ile Ser Phe Gly
 245 250 255
 Gly Ala Ala Leu Leu Phe Gln Ser Ile Phe Ser Thr Val Trp Thr Pro
 260 265 270
 Tyr Ile Phe Arg Ala Ile Glu Ala Asn Ala Pro Pro Ala Arg Leu Ser
 275 280 285
 Ala Thr Ala Glu Ser Ala Ala Ala Leu Leu Ala Ser Ala Leu Cys Leu
 290 295 300
 Thr Gly Ile Phe Ser Pro Leu Ala Ser Leu Leu Leu Pro Glu Asn Tyr
 305 310 315 320
 Ala Ala Val Arg Phe Ile Val Val Ser Cys Met Leu Pro Pro Leu Phe
 325 330 335
 Cys Thr Leu Val Glu Ile Ser Gly Ile Gly Leu Asn Val Val Arg Lys
 340 345 350
 Thr Arg Pro Ile Ala Leu Ala Thr Leu Gly Ala Leu Ala Ala Asn Leu
 355 360 365
 Leu Leu Leu Gly Leu Ala Val Pro Ser Gly Gly Ala Arg Gly Ala Ala
 370 375 380
 Val Ala Cys Ala Ala Ser Phe Trp Leu Phe Phe Val Phe Lys Thr Glu
 385 390 395 400
 Ser Ser Cys Arg Leu Trp Gln Pro Leu Lys Arg Leu Pro Leu Tyr Met
 405 410 415
 His Thr Leu Phe Cys Leu Ala Ser Ser Ala Ala Tyr Thr Cys Phe Gly
 420 425 430
 Thr Pro Ala Asn Tyr Pro Leu Phe Ala Gly Val Trp Ala Val Tyr Leu
 435 440 445
 Ala Gly Cys Ile Leu Arg His Arg Lys Asp Leu His Lys Leu Phe His
 450 455 460
 Tyr Leu Lys Lys Gln Gly Phe Pro Leu
 465 470

<210> 379

<211> 1422

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 379

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ctgatgcaga	cggcgccggg	actgacgggtg	tcgggtattgt	gcctcgggct	ggatcaggca	180
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ccgccgctgc	tgttttcgct	cgcgatagcc	gccctgctgc	tttccccgcc	gtccctgccg	300
tctgaaatcc	tgttttcgct	cgacgatgcc	gccgccggca	tcgggctggt	gctgtttgaa	360
ctgagcttcc	tgcccatccg	ctttctctta	ctgggttttg	gtatggaagg	gcgcgccctt	420
gccttttctg	ccgcgcaact	cgtgccccaa	ctcgccattc	tgctgctggt	gccgctgacg	480
gtcgggctgc	tgcactttcc	ggcgaacacc	tccgtcctga	ccgccgttta	cgcgctggca	540
aaccttgccg	ccgcgcgctt	tttgctgttt	caaaaccgat	gccgtctgaa	ggccgtccgg	600
cgcgcgcgct	tttcgccccg	cgtcctgcac	cgggggctgc	gctacggcat	accgctcgca	660
ctgagcagcc	ttgcctattg	ggggctggca	tccgccgacc	gtttgttctt	gaaaaaatat	720
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aacgccacgc	ccgcccgccct	ctcggaacgc	gcagaatccg	ccgccgccct	gcttgccctc	900
gccctctgcc	tgaccggaat	tttctcgccc	ctcgccctcc	tcctgctgcc	ggaaaactac	960
gccgcgcgtc	ggtttaccgt	cgtatcgtgt	atgctgccgc	cgtgttttta	cacgctgacc	1020
gaaatcagcg	gcacggtttt	gaacgtcgtc	cgcaaaacgc	gtccgatcgc	gcttgccacc	1080
ttgggcgcgc	tggcggaaaa	cctgctgctg	ctggggcttg	ccgtaccgtc	cggcggcacg	1140
cgcggcgccg	cgggttgccg	tgcgcctca	ttctggttgt	ttttgtttt	caagacagaa	1200
agctcctgcc	gcctgtggca	gccgtcaaaa	cgcccgccgc	tttatatgca	cacattgttc	1260
tgccctggcc	cctcggcggc	ctacacctgc	ttcggcacac	cggcaaaacta	ccccctgttt	1320
gccggcgat	gggcggcata	tctggcaggc	tgcacctgc	gccaccggaa	aaatttgac	1380
aaactgtttc	attatttgaa	aaaacaaggt	ttcccattat	ga		1422

<210> 380

<211> 473

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 380

Met	Asp	Thr	Lys	Glu	Ile	Leu	Gly	Tyr	Ala	Ala	Gly	Ser	Ile	Gly	Ser
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Ala	Val	Leu	Ala	Val	Ile	Ile	Leu	Pro	Leu	Leu	Ser	Trp	Tyr	Phe	Pro
			20					25						30	
Ala	Asp	Asp	Ile	Gly	Arg	Ile	Val	Leu	Met	Gln	Thr	Ala	Ala	Gly	Leu
			35					40						45	
Thr	Val	Ser	Val	Leu	Cys	Leu	Gly	Leu	Asp	Gln	Ala	Tyr	Val	Arg	Glu
			50				55							60	
Tyr	Tyr	Ala	Ala	Ala	Asp	Lys	Asp	Thr	Leu	Phe	Lys	Thr	Leu	Phe	Leu
65					70				75					80	
Pro	Pro	Leu	Leu	Phe	Ser	Ala	Ala	Ile	Ala	Ala	Leu	Leu	Leu	Ser	Arg
					85				90					95	
Pro	Ser	Leu	Pro	Ser	Glu	Ile	Leu	Phe	Ser	Leu	Asp	Asp	Ala	Ala	Ala
			100					105						110	

Gly Ile Gly Leu Val Leu Phe Glu Leu Ser Phe Leu Pro Ile Arg Phe	115	120	125
Leu Leu Leu Val Leu Arg Met Glu Gly Arg Ala Leu Ala Phe Ser Ser	130	135	140
Ala Gln Leu Val Pro Lys Leu Ala Ile Leu Leu Leu Leu Pro Leu Thr	145	150	155
Val Gly Leu Leu His Phe Pro Ala Asn Thr Ser Val Leu Thr Ala Val	165	170	175
Tyr Ala Leu Ala Asn Leu Ala Ala Ala Ala Phe Leu Leu Phe Gln Asn	180	185	190
Arg Cys Arg Leu Lys Ala Val Arg Arg Ala Pro Phe Ser Pro Ala Val	195	200	205
Leu His Arg Gly Leu Arg Tyr Gly Ile Pro Leu Ala Leu Ser Ser Leu	210	215	220
Ala Tyr Trp Gly Leu Ala Ser Ala Asp Arg Leu Phe Leu Lys Lys Tyr	225	230	235
Ala Gly Leu Glu Gln Leu Gly Val Tyr Ser Met Gly Ile Ser Phe Gly	245	250	255
Gly Ala Ala Leu Leu Leu Gln Ser Ile Phe Ser Thr Val Trp Thr Pro	260	265	270
Tyr Ile Phe Arg Ala Ile Glu Glu Asn Ala Thr Pro Ala Arg Leu Ser	275	280	285
Ala Thr Ala Glu Ser Ala Ala Ala Leu Leu Ala Ser Ala Leu Cys Leu	290	295	300
Thr Gly Ile Phe Ser Pro Leu Ala Ser Leu Leu Leu Pro Glu Asn Tyr	305	310	315
Ala Ala Val Arg Phe Thr Val Val Ser Cys Met Leu Pro Pro Leu Phe	325	330	335
Tyr Thr Leu Thr Glu Ile Ser Gly Ile Gly Leu Asn Val Val Arg Lys	340	345	350
Thr Arg Pro Ile Ala Leu Ala Thr Leu Gly Ala Leu Ala Ala Asn Leu	355	360	365
Leu Leu Leu Gly Leu Ala Val Pro Ser Gly Gly Thr Arg Gly Ala Ala	370	375	380
Val Ala Cys Ala Ala Ser Phe Trp Leu Phe Phe Val Phe Lys Thr Glu	385	390	395
Ser Ser Cys Arg Leu Trp Gln Pro Leu Lys Arg Leu Pro Leu Tyr Met	405	410	415

His Thr Leu Phe Cys Leu Ala Ser Ser Ala Ala Tyr Thr Cys Phe Gly
420 425 430

Thr Pro Ala Asn Tyr Pro Leu Phe Ala Gly Val Trp Ala Ala Tyr Leu
435 440 445

Ala Gly Cys Ile Leu Arg His Arg Lys Asn Leu His Lys Leu Phe His
450 455 460

Tyr Leu Lys Lys Gln Gly Phe Pro Leu
465 470

<210> 381
<211> 637
<212> DNA
<213> Neisseria meningitidis

<400> 381
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gacaagcagc ccggtgcccga taaagccgac gaggttgaag aaaaggcggg cgagccggaa 180
cgggaagagc cggacggaca ggcagtgcgt aagaaagcgc tgacggaaga gcgtgaacaa 240
accgtcaggg aaaaagcgcga gaagaaagat gccgaaacgg ttaaaataca agcggtaaaa 300
ccgtctaaag aaacagagaa aaaagcttca aaagaagaga aaaaggcggc gaaggaaaaa 360
gttgcaccca aaccaacccc ggaacaaatc ctcaacagcg gcagcatcga aaamgcgcgc 420
agtgcgcgcg ccaaagaagt gcagaaaatg aaaacgtccg acaaggcggg agcaacgcat 480
tatctgcaaa tgggcgcgta tgccgaccgt cagagcgcgg aagggcagcg tgccaaactg 540
gcaatcttgg gcatacttcc caaggtggtc gggtatcagg cgggacataa aacgctttac 600
cgggtgcaaa gcggcaatat gtctgccgat gcggtga 637

<210> 382
<211> 212
<212> PRT
<213> Neisseria meningitidis

<220>
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<222> (138)..(138)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (151)..(151)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (159)..(159)
<223> Xaa= any amino acid

<400> 382
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1 5 10 15
Ala Asp Gln Asn Ala Leu Ser Glu Pro Asp Ala Ala Thr Glu Ala Glu
20 25 30

Gln Ser Asp Ala Glu Asn Ala Ala Asp Lys Gln Pro Val Ala Asp Lys
 35 40 45
 Ala Asp Glu Val Glu Glu Lys Ala Gly Glu Pro Glu Arg Glu Glu Pro
 50 55 60
 Asp Gly Gln Ala Val Arg Lys Lys Ala Leu Thr Glu Glu Arg Glu Gln
 65 70 75 80
 Thr Val Arg Glu Lys Ala Gln Lys Lys Asp Ala Glu Thr Val Lys Ile
 85 90 95
 Gln Ala Val Lys Pro Ser Lys Glu Thr Glu Lys Lys Ala Ser Lys Glu
 100 105 110
 Glu Lys Lys Ala Ala Lys Glu Lys Val Ala Pro Lys Pro Thr Pro Glu
 115 120 125
 Gln Ile Leu Asn Ser Gly Ser Ile Glu Xaa Ala Arg Ser Ala Ala Ala
 130 135 140
 Lys Glu Val Gln Lys Met Xaa Asn Val Arg Gln Gly Gly Ser Xaa Arg
 145 150 155 160
 Ile Ile Cys Lys Trp Ala Arg Met Pro Thr Val Arg Ala Arg Lys Gly
 165 170 175
 Ser Val Pro Asn Trp Gln Ser Trp Ala Tyr Leu Pro Arg Trp Ser Val
 180 185 190
 Ile Arg Arg Asp Ile Lys Arg Phe Thr Gly Cys Lys Ala Ala Ile Cys
 195 200 205
 Leu Pro Met Arg
 210

<210> 383
 <211> 870
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 383
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 gcgttcaaaa tcccggcttc gtcgaagcag cctgcagaaa cggaatcct gaaaccgaaa 180
 aaccagccta aggaagacat ccaacctgaa ccggccgatac aaaacgcctt gtccgaaccg 240
 gatgctgcga cagaggcaga gcagtcggat gcggaaaaag ctgccgacaa gcagcccgtt 300
 gccgataaag ccgacgaggt tgaagaaaag gcgggcgagc cggaacggga agagccggac 360
 ggacaggcag tgcgtaagaa agcgtgacg gaagagcgtg aacaaaccgt cagggaaaaa 420
 gcgcagaaga aagatgccga aacggttaaa aaacaagcgg taaaaccgtc' taaagaaaca 480
 gagaaaaaag cttcaaaaaga agagaaaaag gcggcggaagg aaaaagttgc acccaaacca 540
 accccggaac aaatcctcaa cagcgggcagc atcgaaaaag cgcgcagtgc cgccgccaaa 600
 gaagtgcaga aaatgaaaac gtccgacaag gcggaagcaa cgcattatct gcaaatgggc 660
 gcgtatgccg accgtcagag cgcggaaggg cagcgtgcc aactggcaat cttgggcata 720
 tcttccaagg tggtcggtta tcaggcggga cataaaacgc tttaccgggt gcaaagcggc 780
 aatatgtctg ccgatgcggt gaaaaaaatg caggacgagt tgaaaaaaca tgaagtcgcc 840

agcctgatcc gttctatcga aagcaaataa

870

<210> 384

<211> 289

<212> PRT

<213> Neisseria meningitidis

<400> 384

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Phe Phe Gly Leu Ile Leu Ala Thr Val Ile Ile Ala Gly Ile Leu Phe
20 25 30

Tyr Leu Asn Gln Ser Gly Gln Asn Ala Phe Lys Ile Pro Ala Ser Ser
35 40 45

Lys Gln Pro Ala Glu Thr Glu Ile Leu Lys Pro Lys Asn Gln Pro Lys
50 55 60

Glu Asp Ile Gln Pro Glu Pro Ala Asp Gln Asn Ala Leu Ser Glu Pro
65 70 75 80

Asp Ala Ala Thr Glu Ala Glu Gln Ser Asp Ala Glu Lys Ala Ala Asp
85 90 95

Lys Gln Pro Val Ala Asp Lys Ala Asp Glu Val Glu Glu Lys Ala Gly
100 105 110

Glu Pro Glu Arg Glu Glu Pro Asp Gly Gln Ala Val Arg Lys Lys Ala
115 120 125

Leu Thr Glu Glu Arg Glu Gln Thr Val Arg Glu Lys Ala Gln Lys Lys
130 135 140

Asp Ala Glu Thr Val Lys Lys Gln Ala Val Lys Pro Ser Lys Glu Thr
145 150 155 160

Glu Lys Lys Ala Ser Lys Glu Glu Lys Lys Ala Ala Lys Glu Lys Val
165 170 175

Ala Pro Lys Pro Thr Pro Glu Gln Ile Leu Asn Ser Gly Ser Ile Glu
180 185 190

Lys Ala Arg Ser Ala Ala Ala Lys Glu Val Gln Lys Met Lys Thr Ser
195 200 205

Asp Lys Ala Glu Ala Thr His Tyr Leu Gln Met Gly Ala Tyr Ala Asp
210 215 220

Arg Gln Ser Ala Glu Gly Gln Arg Ala Lys Leu Ala Ile Leu Gly Ile
225 230 235 240

Ser Ser Lys Val Val Gly Tyr Gln Ala Gly His Lys Thr Leu Tyr Arg
245 250 255

Val Gln Ser Gly Asn Met Ser Ala Asp Ala Val Lys Lys Met Gln Asp
 260 265 270

Glu Leu Lys Lys His Glu Val Ala Ser Leu Ile Arg Ser Ile Glu Ser
 275 280 285

Lys

<210> 385
 <211> 770
 <212> DNA
 <213> Neisseria meningitidis

<400> 385
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 aaaacgcctt gtccgaaccg gatgctgcga aagaggcaga gcagtcggat gcggaaaaag 180
 ctgccgacaa gcagcccgtt gccgacaaag ccgacgaggt tgaggaaaag gcggacgagc 240
 cggagcggga aaagtcggac ggacaggcag tgcgcaagaa agcactgacg gaagagcgtg 300
 aacaaaccgt cggggaaaaa gcgcagaaga aagatgccga aacggttaaa aaacaagcgg 360
 taaaaccatc taaagaaaca gagaaaaaag cttcaaaaga agagaaaaag gcggagaagg 420
 aaaaagtgc acccaaaccg accccggaac aaatcctcaa cagcggcagc atcgaaaaag 480
 cgcgagtgct cgctgccaaa gaagtgcaga aaatgaaaac gcccgacaag gcggaagcaa 540
 cgcatatct gcaaattggc gcgtatgccg accgccggag cgcggaaggg cagcgtgcc 600
 aactggcaat cttgggcata tcttccaagg tggtcgggta tcaggcggga cataaacgc 660
 tttaccgggt gcaaagcggc aatatgtctg ccgatgcggt gaaaaaatg caggacgagt 720
 tgaaaaaaca tgaagtcgcc agcctgatcc gttctatcga aagcaaataa 770

<210> 386
 <211> 289
 <212> PRT
 <213> Neisseria meningitidis

<400> 386
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 Phe Phe Gly Leu Ile Leu Ala Thr Val Ile Ile Ala Gly Ile Leu Phe
 20 25 30
 Tyr Leu Asn Gln Ser Gly Gln Asn Ala Phe Lys Ile Pro Val Pro Ser
 35 40 45
 Lys Gln Pro Ala Glu Thr Glu Ile Leu Lys Pro Lys Asn Gln Pro Lys
 50 55 60
 Glu Asp Ile Gln Pro Glu Pro Ala Asp Gln Asn Ala Leu Ser Glu Pro
 65 70 75 80
 Asp Ala Ala Lys Glu Ala Glu Gln Ser Asp Ala Glu Lys Ala Ala Asp
 85 90 95
 Lys Gln Pro Val Ala Asp Lys Ala Asp Glu Val Glu Glu Lys Ala Asp
 100 105 110

Glu Pro Glu Arg Glu Lys Ser Asp Gly Gln Ala Val Arg Lys Lys Ala
 115 120 125
 Leu Thr Glu Glu Arg Glu Gln Thr Val Gly Glu Lys Ala Gln Lys Lys
 130 135 140
 Asp Ala Glu Thr Val Lys Lys Gln Ala Val Lys Pro Ser Lys Glu Thr
 145 150 155 160
 Glu Lys Lys Ala Ser Lys Glu Glu Lys Lys Ala Glu Lys Glu Lys Val
 165 170 175
 Ala Pro Lys Pro Thr Pro Glu Gln Ile Leu Asn Ser Gly Ser Ile Glu
 180 185 190
 Lys Ala Arg Ser Ala Ala Ala Lys Glu Val Gln Lys Met Lys Thr Pro
 195 200 205
 Asp Lys Ala Glu Ala Thr His Tyr Leu Gln Met Gly Ala Tyr Ala Asp
 210 215 220
 Arg Arg Ser Ala Glu Gly Gln Arg Ala Lys Leu Ala Ile Leu Gly Ile
 225 230 235 240
 Ser Ser Lys Val Val Gly Tyr Gln Ala Gly His Lys Thr Leu Tyr Arg
 245 250 255
 Val Gln Ser Gly Asn Met Ser Ala Asp Ala Val Lys Lys Met Gln Asp
 260 265 270
 Glu Leu Lys Lys His Glu Val Ala Ser Leu Ile Arg Ser Ile Glu Ser
 275 280 285

Lys

<210> 387
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 387
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<210> 388
 <211> 267
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 388
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1	5	10	15
Phe Phe Gly Leu Ile Leu Ala Thr Val Ile Ile Ala Gly Ile Leu Leu	20	25	30
Tyr Leu Asn Gln Gly Gly Gln Asn Ala Phe Lys Ile Pro Ala Pro Ser	35	40	45
Lys Gln Pro Ala Glu Thr Glu Ile Leu Lys Leu Lys Asn Gln Pro Lys	50	55	60
Glu Asp Ile Gln Pro Glu Pro Ala Asp Gln Asn Ala Leu Ser Glu Pro	65	70	75
Asp Val Ala Lys Glu Ala Glu Gln Ser Asp Ala Glu Lys Ala Ala Asp	85	90	95
Lys Gln Pro Val Ala Asp Lys Ala Asp Glu Val Glu Glu Lys Ala Gly	100	105	110
Glu Pro Glu Arg Glu Glu Pro Asp Gly Gln Ala Val Arg Lys Lys Ala	115	120	125
Leu Thr Glu Glu Arg Glu Gln Thr Val Arg Glu Lys Ala Gln Lys Lys	130	135	140
Asp Ala Glu Thr Val Lys Lys Lys Ala Val Lys Pro Ser Lys Glu Thr	145	150	155
Glu Lys Lys Ala Ser Lys Glu Glu Lys Lys Ala Ala Lys Glu Lys Val	165	170	175
Ala Pro Lys Pro Thr Pro Glu Gln Ile Leu Asn Ser Arg Ser Ile Glu	180	185	190
Lys Ala Arg Ser Ala Ala Ala Lys Glu Val Gln Lys Met Lys Asn Phe	195	200	205
Gly Gln Gly Gly Ser Gln Arg Ile Ile Cys Lys Trp Ala Arg Met Pro	210	215	220
Asn Pro Gly Ala Arg Lys Gly Ser Val Pro Asn Trp Gln Ser Trp Ala	225	230	235
Tyr Leu Pro Lys Trp Ser Ala Ile Arg Arg Asp Ile Lys Arg Phe Thr	245	250	255
Ala Cys Lys Ala Ala Ile Cys Pro Pro Met Arg	260	265	

<210> 389
 <211> 873
 <212> DNA
 <213> *Neisseria gonorrhoeae*
 <400> 389

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atactggcaa	cggtcattat	tgccggtatt	ttgctttatc	tgaaccaggg	cgggtcaaat	120
gcgttcaaaa	tcccggctcc	gtcgaagcag	cctgcagaaa	cggaaatcct	gaaactgaaa	180
aaccagccta	aggaagacat	ccaacctgaa	ccggccgata	aaaacgcctt	gtccgaaccg	240
gatgttgcca	aagaggcaga	gcagtcggat	gcggaaaaag	ctgccgacaa	gcagcccgtt	300
gccgacaaag	ccgacgaggt	tgaagaaaag	gcgggcgagc	cggaacggga	agagccggac	360
ggacaggcag	tgcgcaagaa	agcactgacg	gaagagcgtg	aacaaaccgt	cagggaaaaa	420
gcgcagaaga	aagatgccga	aacggttaaa	aaacaagcgg	taaaaccgtc	taaagaaaca	480
gagaaaaaag	cttcaaaaaga	agagaaaaag	gcggcgaaaag	aaaaagttgc	acccaaaccg	540
accccggaac	aaatcctcaa	cagccgcagc	atcgaaaaag	cgcgtagtgc	cgctgccaaa	600
gaagtgcaga	aaatgaaaaa	ctttgggcaa	ggcggaagcc	aacgcattat	ctgcaaatgg	660
gcgcgtatgc	cgaccgtccg	gagcgcggaa	gggcagcgtg	ccaaactggc	aatcttgggc	720
atatcttccg	aagtggtcgg	ctatcaggcg	ggacataaaa	cgttttaccg	cgtgcaaagc	780
ggcaatatgt	ccgccgatgc	ggtgaaaaaa	atgcaggacg	agttgaaaaa	gcattgggggt	840
gccagcctga	tccgtgcgat	tgaaggcaaa	taa			873

<210> 390
 <211> 290
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 390

Met	Phe	Met	Asn	Lys	Phe	Ser	Gln	Ser	Gly	Lys	Gly	Leu	Ser	Gly	Phe
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Phe	Phe	Gly	Leu	Ile	Leu	Ala	Thr	Val	Ile	Ile	Ala	Gly	Ile	Leu	Leu
			20					25					30		
Tyr	Leu	Asn	Gln	Gly	Gly	Gln	Asn	Ala	Phe	Lys	Ile	Pro	Ala	Pro	Ser
		35					40					45			
Lys	Gln	Pro	Ala	Glu	Thr	Glu	Ile	Leu	Lys	Leu	Lys	Asn	Gln	Pro	Lys
	50					55					60				
Glu	Asp	Ile	Gln	Pro	Glu	Pro	Ala	Asp	Gln	Asn	Ala	Leu	Ser	Glu	Pro
65					70				75					80	
Asp	Val	Ala	Lys	Glu	Ala	Glu	Gln	Ser	Asp	Ala	Glu	Lys	Ala	Ala	Asp
			85					90						95	
Lys	Gln	Pro	Val	Ala	Asp	Lys	Ala	Asp	Glu	Val	Glu	Glu	Lys	Ala	Gly
		100					105						110		
Glu	Pro	Glu	Arg	Glu	Glu	Pro	Asp	Gly	Gln	Ala	Val	Arg	Lys	Lys	Ala
	115					120						125			
Leu	Thr	Glu	Glu	Arg	Glu	Gln	Thr	Val	Arg	Glu	Lys	Ala	Gln	Lys	Lys
	130				135						140				
Asp	Ala	Glu	Thr	Val	Lys	Lys	Gln	Ala	Val	Lys	Pro	Ser	Lys	Glu	Thr
145				150					155					160	
Glu	Lys	Lys	Ala	Ser	Lys	Glu	Glu	Lys	Lys	Ala	Ala	Lys	Glu	Lys	Val
			165					170						175	
Ala	Pro	Lys	Pro	Thr	Pro	Glu	Gln	Ile	Leu	Asn	Ser	Arg	Ser	Ile	Glu

180	185	190
Lys Ala Arg Ser Ala Ala Ala	Lys Glu Val Gln Lys Met Lys Asn Phe	
195	200	205
Gly Gln Gly Gly Ser Gln Arg Ile Ile Cys Lys Trp Ala Arg Met Pro		
210	215	220
Thr Val Arg Ser Ala Glu Gly Gln Arg Ala Lys Leu Ala Ile Leu Gly		
225	230	235
Ile Ser Ser Glu Val Val Gly Tyr Gln Ala Gly His Lys Thr Leu Tyr		
245	250	255
Arg Val Gln Ser Gly Asn Met Ser Ala Asp Ala Val Lys Lys Met Gln		
260	265	270
Asp Glu Leu Lys Lys His Gly Val Ala Ser Leu Ile Arg Ala Ile Glu		
275	280	285
Gly Lys		
290		

<210> 391
 <211> 668
 <212> DNA
 <213> Neisseria meningitidis

<400> 391

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accgcttttg	gctgatcctg	ctgcttaaca	caggacgggt	aagcagctat	acggcaatcg	180
gcctgatact	cggattaatc	ggacaggctg	gcgtttcact	cgaccaaacc	cgcgtcctgc	240
agaatatttt	atacacggcc	gccaacctcc	tgctgctctt	tttaggetta	tacttgagcg	300
gtatttcttc	cttggcggca	aaaatcgaga	aaatcggcaa	accgatatgg	cggaacctga	360
acccgatact	caaccggctg	ttacccataa	aatccatacc	cgctgcctt	gcggtcggaa	420
tattatgggg	ctggtgcgcg	tgcggactgg	tttacagcgc	gtcgctttac	gcgctgggaa	480
gcggtagtgc	ggcaacgggc	gggttatata	tgcttgccct	tgcaactgggt	acgctgcccc	540
atcttttagc	aatcggcatt	ttttccctgc	aactgaawaa	aatcatgcaa	aaccgatata	600
tccgcctgtg	tacgggatta	tccgtatcat	tatgggcatt	atggaaactt	gccgtcctgt	660
ggctgtaa						668

<210> 392
 <211> 222
 <212> PRT
 <213> Neisseria meningitidis

<220>
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 <222> (15)..(15)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (33)..(34)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (193)..(193)
 <223> Xaa= any amino acid

<400> 392

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Gly Gly Thr His Cys Ile Gly Met Cys Gly Gly Leu Ser Ser Ala Phe
          20           25           30

Xaa Xaa Gln Leu Pro Pro His Ile Asn Arg Phe Trp Leu Ile Leu Leu
          35           40           45

Leu Asn Thr Gly Arg Val Ser Ser Tyr Thr Ala Ile Gly Leu Ile Leu
          50           55           60

Gly Leu Ile Gly Gln Val Gly Val Ser Leu Asp Gln Thr Arg Val Leu
65           70           75           80

Gln Asn Ile Leu Tyr Thr Ala Ala Asn Leu Leu Leu Leu Phe Leu Gly
          85           90           95

Leu Tyr Leu Ser Gly Ile Ser Ser Leu Ala Ala Lys Ile Glu Lys Ile
          100          105          110

Gly Lys Pro Ile Trp Arg Asn Leu Asn Pro Ile Leu Asn Arg Leu Leu
          115          120          125

Pro Ile Lys Ser Ile Pro Ala Cys Leu Ala Val Gly Ile Leu Trp Gly
          130          135          140

Trp Leu Pro Cys Gly Leu Val Tyr Ser Ala Ser Leu Tyr Ala Leu Gly
145          150          155          160

Ser Gly Ser Ala Ala Thr Gly Gly Leu Tyr Met Leu Ala Phe Ala Leu
          165          170          175

Gly Thr Leu Pro Asn Leu Leu Ala Ile Gly Ile Phe Ser Leu Gln Leu
          180          185          190

Xaa Lys Ile Met Gln Asn Arg Tyr Ile Arg Leu Cys Thr Gly Leu Ser
          195          200          205

Val Ser Leu Trp Ala Leu Trp Lys Leu Ala Val Leu Trp Leu
          210          215          220

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<210> 393
 <211> 669
 <212> DNA
 <213> Neisseria meningitidis

<400> 393

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tgcacgcggtg tgtgcggcgg attaagcagc gcgtttgcgc tccaactccc cccgcatatc    120

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aaccgctttt	ggctgaccc	gctgcttaac	acaggacggg	taagcagcta	tacggcaatc	180
ggcctgatac	tcggattaat	cggacaggtc	ggcgtttcac	tcgaccaaac	ccgcgtcctg	240
cagaatattt	tatacacggc	cgccaacctc	ctgctgtctt	ttttaggctt	atacttgagc	300
ggatatttctt	ccttggcggc	aaaaatcgag	aaaatcggca	aaccgatatg	gcggaacctg	360
aacccgatac	tcaaccggct	gttaccata	aaatccatac	ccgcctgcct	tgcggtcgga	420
atattatggg	gctggctgcc	gtgcggactg	gtttacagcg	cgctcgctta	cgcgctggga	480
agcggtagtg	cggcaacggg	cgggttatat	atgcttgcct	ttgactggg	tacgctgccc	540
aatcttttag	caatcggcat	ttttccctg	caactgaaaa	aaatcatgca	aaaccgatat	600
atccgcctgt	gtacgggatt	atccgtatca	ttatgggcat	tatggaaact	tgccgtcctg	660
tggtctgtaa						669

<210> 394
 <211> 222
 <212> PRT
 <213> Neisseria meningitidis

<400> 394'
 Met Asn His Asp Ile Thr Phe Leu Thr Leu Phe Leu Leu Gly Phe Phe
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 Gly Gly Thr His Cys Ile Gly Met Cys Gly Gly Leu Ser Ser Ala Phe
 20 25 30
 Ala Leu Gln Leu Pro Pro His Ile Asn Arg Phe Trp Leu Ile Leu Leu
 35 40 45
 Leu Asn Thr Gly Arg Val Ser Ser Tyr Thr Ala Ile Gly Leu Ile Leu
 50 55 60
 Gly Leu Ile Gly Gln Val Gly Val Ser Leu Asp Gln Thr Arg Val Leu
 65 70 75 80
 Gln Asn Ile Leu Tyr Thr Ala Ala Asn Leu Leu Leu Phe Leu Gly
 85 90 95
 Leu Tyr Leu Ser Gly Ile Ser Ser Leu Ala Ala Lys Ile Glu Lys Ile
 100 105 110
 Gly Lys Pro Ile Trp Arg Asn Leu Asn Pro Ile Leu Asn Arg Leu Leu
 115 120 125
 Pro Ile Lys Ser Ile Pro Ala Cys Leu Ala Val Gly Ile Leu Trp Gly
 130 135 140
 Trp Leu Pro Cys Gly Leu Val Tyr Ser Ala Ser Leu Tyr Ala Leu Gly
 145 150 155 160
 Ser Gly Ser Ala Ala Thr Gly Gly Leu Tyr Met Leu Ala Phe Ala Leu
 165 170 175
 Gly Thr Leu Pro Asn Leu Leu Ala Ile Gly Ile Phe Ser Leu Gln Leu
 180 185 190
 Lys Lys Ile Met Gln Asn Arg Tyr Ile Arg Leu Cys Thr Gly Leu Ser
 195 200 205

Val Ser Leu Trp Ala Leu Trp Lys Leu Ala Val Leu Trp Leu
 210 215 220

<210> 395
 <211> 669
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (9)..(9)
 <223> N= Unknown

<220>
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 <222> (129)..(129)
 <223> N= Unknown

<220>
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 <222> (238)..(238)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (548)..(548)
 <223> N= Unknown

<220>
 <221> misc_feature
 <222> (577)..(577)
 <223> N= Unknown

<400> 395
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 aaccgcttnt ggctgaccc gctgcttaac acaggacggg taagcagcta tacggcaatc 180
 ggccctgatac tcggattaat cggacaggtc ggcgtttcac tcgaccaaac ccgcgtctntg 240
 cagaatattt tatacacggc cgccaacctc ctgctgctct ttttaggctt atacttgagc 300
 ggtattttctt ccttggcggc aaaaatcgag aaaatcggca aaccgatatg gcggaacctg 360
 aacccgatac tcaaccggct gttaccata aaatccatac ccgcctgcct tgcggtcgga 420
 atattatggg gctggctgcc gtgcggacta gtttacagcg cgctcgctta cgcgctggga 480
 agcggtagtg cggcaacggg cgggttatat atgcttgcc ttgcactggg tacgctgccc 540
 aatcttttngg caatcggcat tttttccctg caactgnaaa aaatcatgca aaaccgatat 600
 atccgcctgt gtacgggatt atccgtatca ttatgggcat tatggaaact tgccgtcctg 660
 tggctgtaa 669

<210> 396
 <211> 222
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (43)..(43)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (80)..(80)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (183)..(183)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (193)..(193)
<223> Xaa= any amino acid

<400> 396

Met	Asn	Xaa	Asp	Ile	Thr	Phe	Leu	Thr	Leu	Phe	Leu	Leu	Gly	Phe	Phe
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			20					25					30		
Ala	Leu	Gln	Leu	Pro	Pro	His	Ile	Asn	Arg	Xaa	Trp	Leu	Ile	Leu	Leu
		35					40					45			
Leu	Asn	Thr	Gly	Arg	Val	Ser	Ser	Tyr	Thr	Ala	Ile	Gly	Leu	Ile	Leu
	50					55					60				
Gly	Leu	Ile	Gly	Gln	Val	Gly	Val	Ser	Leu	Asp	Gln	Thr	Arg	Val	Xaa
65				70						75					80
Gln	Asn	Ile	Leu	Tyr	Thr	Ala	Ala	Asn	Leu	Leu	Leu	Leu	Phe	Leu	Gly
			85						90					95	
Leu	Tyr	Leu	Ser	Gly	Ile	Ser	Ser	Leu	Ala	Ala	Lys	Ile	Glu	Lys	Ile
		100						105					110		
Gly	Lys	Pro	Ile	Trp	Arg	Asn	Leu	Asn	Pro	Ile	Leu	Asn	Arg	Leu	Leu
		115					120					125			
Pro	Ile	Lys	Ser	Ile	Pro	Ala	Cys	Leu	Ala	Val	Gly	Ile	Leu	Trp	Gly
	130					135					140				
Trp	Leu	Pro	Cys	Gly	Leu	Val	Tyr	Ser	Ala	Ser	Leu	Tyr	Ala	Leu	Gly
145					150					155				160	
Ser	Gly	Ser	Ala	Ala	Thr	Gly	Gly	Leu	Tyr	Met	Leu	Ala	Phe	Ala	Leu
			165						170					175	
Gly	Thr	Leu	Pro	Asn	Leu	Xaa	Ala	Ile	Gly	Ile	Phe	Ser	Leu	Gln	Leu
		180						185						190	

Xaa Lys Ile Met Gln Asn Arg Tyr Ile Arg Leu Cys Thr Gly Leu Ser
 195 200 205

Val Ser Leu Trp Ala Leu Trp Lys Leu Ala Val Leu Trp Leu
 210 215 220

<210> 397
 <211> 669
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 397
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 aaccgctttt ggctgattct gctgcttaac acaggacgga taagcagcta tacggcaatc 180
 ggcctgatgc tcggattaat cggacaactc ggcatttcac tcgaccaaac ccgcgtcctg 240
 caaaatatatt tatacacagc ctccaacctc ctgctgctct ttttaggctt atacttgagc 300
 ggtattttctt ccttggcggc aaaaatcgag aaaatcggca aaccgatatg gcgcaacctg 360
 aaccgatac tcaaccggct gctgcccata aaatccatac ccgcctgcct tgctgtcggg 420
 atattatggg gctggctgcc gtgcggactg gtttacagcg catcacttta cgcgctggga 480
 agcggtagtg cgacaaccgg cggactgtat atgcttgctt ttgcaactggg tacgctgccc 540
 aatcttttgg caatcggcat tttttccctg caactgaaaa aaatcatgca aaaccgatat 600
 atccgcctgt gtacaggatt atccgtatca ttatgggcat tatggaagct tgccgtcctg 660
 tggtctgtaa 669

<210> 398
 <211> 222
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 398
 Met Asn His Asp Ile Thr Phe Leu Thr Leu Phe Leu Leu Gly Phe Phe
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 20 25 30
 Ala Leu Gln Leu Pro Pro His Ile Asn Arg Phe Trp Leu Ile Leu Leu
 35 40 45
 Leu Asn Thr Gly Arg Ile Ser Ser Tyr Thr Ala Ile Gly Leu Met Leu
 50 55 60
 Gly Leu Ile Gly Gln Leu Gly Ile Ser Leu Asp Gln Thr Arg Val Leu
 65 70 75 80
 Gln Asn Ile Leu Tyr Thr Ala Ser Asn Leu Leu Leu Leu Phe Leu Gly
 85 90 95
 Leu Tyr Leu Ser Gly Ile Ser Ser Leu Ala Ala Lys Ile Glu Lys Ile
 100 105 110
 Gly Lys Pro Ile Trp Arg Asn Leu Asn Pro Ile Leu Asn Arg Leu Leu
 115 120 125
 Pro Ile Lys Ser Ile Pro Ala Cys Leu Ala Val Gly Ile Leu Trp Gly

130

135

140

Trp Leu Pro Cys Gly Leu Val Tyr Ser Ala Ser Leu Tyr Ala Leu Gly
 145 150 155 160

Ser Gly Ser Ala Thr Thr Gly Gly Leu Tyr Met Leu Ala Phe Ala Leu
 165 170 175

Gly Thr Leu Pro Asn Leu Leu Ala Ile Gly Ile Phe Ser Leu Gln Leu
 180 185 190

Lys Lys Ile Met Gln Asn Arg Tyr Ile Arg Leu Cys Thr Gly Leu Ser
 195 200 205

Val Ser Leu Trp Ala Leu Trp Lys Leu Ala Val Leu Trp Leu
 210 215 220

<210> 399

<211> 832

<212> DNA

<213> Neisseria meningitidis

<400> 399

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ggaacgctgc	cgattccgtg	cggcaggtat	tgaagtttgt	cgatgcgcgc	acgctgggtgt	120
gggtgcgttt	taccgtggcg	gcggcggtat	tgtttggttt	gctggcactg	ggcgggcggc	180
tgccgaagcg	gcgaggattt	ttcttggtgc	tcattcaggc	tgctgctgct	cggcgtggcg	240
ggcatttcgg	caaaccttgt	gctgattgcc	caagggtctg	attatatattc	gccgaccacg	300
acgcaggttt	tgtggcagat	ttcgccgttt	acgatgattg	twgtcgggtgt	gttgggtgttt	360
aaagaccgga	tgactgccgc	tcagaaaatc	ggcttggttt	tgctgcttgc	cggtttgctt	420
atgtatttta	acgataaatt	cggcgagttg	tcgggttttg	gcgcgtatgc	aagggcgtgt	480
tgctgtgtgc	ggcaggcagt	atggcatggg	tgtgtaatgc	cgtggcgcaa	aagctgctgt	540
cggcgcaatt	cgggccgcaa	cagattctgc	tgttgattta	tgccgcaagt	gccgccgtgt	600
tcctgccgtt	tgccgaaccg	gcacacatcg	gaagtatgga	cggtacgttg	gcgtgggtat	660
gtattgcgta	ttgctgcttg	aatacgttaa	tcggttacgg	ctcgttcggc	gaggcggtga	720
aacattggga	ggcttccaaa	gtcagcgcg	taacaacctt	gctccccgtg	tttaccgtaa	780
taaatacttt	gctcgggcat	tatgtgatgc	ctgaaacttt	tgccgcgcgc	ga	832

<210> 400

<211> 277

<212> PRT

<213> Neisseria meningitidis

<220>

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<222> (25)..(25)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (157)..(157)

<223> Xaa= any amino acid

<400> 400

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 20 25 30
 Phe Val Asp Ala Pro Thr Leu Val Trp Val Arg Phe Thr Val Ala Ala
 35 40 45
 Ala Val Leu Phe Val Leu Leu Ala Leu Gly Gly Arg Leu Pro Lys Arg
 50 55 60
 Arg Asp Phe Ser Trp Cys Ser Phe Arg Leu Leu Leu Leu Gly Val Ala
 65 70 75 80
 Gly Ile Ser Ala Asn Phe Val Leu Ile Ala Gln Gly Leu His Tyr Ile
 85 90 95
 Ser Pro Thr Thr Thr Gln Val Leu Trp Gln Ile Ser Pro Phe Thr Met
 100 105 110
 Ile Val Val Gly Val Leu Val Phe Lys Asp Arg Met Thr Ala Ala Gln
 115 120 125
 Lys Ile Gly Leu Val Leu Leu Leu Ala Gly Leu Leu Met Tyr Phe Asn
 130 135 140
 Asp Lys Phe Gly Glu Leu Ser Gly Leu Gly Ala Tyr Xaa Lys Gly Val
 145 150 155 160
 Leu Leu Cys Ala Ala Gly Ser Met Ala Trp Val Cys Asn Ala Val Ala
 165 170 175
 Gln Lys Leu Leu Ser Ala Gln Phe Gly Pro Gln Gln Ile Leu Leu Leu
 180 185 190
 Ile Tyr Ala Ala Ser Ala Ala Val Phe Leu Pro Phe Ala Glu Pro Ala
 195 200 205
 His Ile Gly Ser Met Asp Gly Thr Leu Ala Trp Val Cys Ile Ala Tyr
 210 215 220
 Cys Cys Leu Asn Thr Leu Ile Gly Tyr Gly Ser Phe Gly Glu Ala Leu
 225 230 235 240
 Lys His Trp Glu Ala Ser Lys Val Ser Ala Val Thr Thr Leu Leu Pro
 245 250 255
 Val Phe Thr Val Ile Asn Thr Leu Leu Gly His Tyr Val Met Pro Glu
 260 265 270
 Thr Phe Ala Ala Pro
 275

<210> 401
 <211> 833
 <212> DNA
 <213> Neisseria meningitidis

<400> 401

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tggttgcggtt ttaccgtggc ggccggcggtta ttgtttgttt tgctggcact gggcggggcg 180
ctgccgaagc ggccgggattt ttcttgggtgc tcattcaggc tgctgctgct cggcgtggcg 240
ggcatttcgg caaactttgt gctgattgcc caagggctgc attatatc gccgaccacg 300
acgcagggtt tgtggcagat ttccgccgtt acgatgattg ttgtcgggtg gttggtgttt 360
aaagaccgga tgactgccgc tcagaaaatc ggcttggttt tgctgcttgc cggtttgctt 420
atgtttttta acgataaatt cggcgagttg tcgggttttg gcgcgtatgc gaagggcggtg 480
ttgctgtgtg cggcaggcag tatggcatgg gtgtgttatg ccgtggcgca aaagctgctg 540
tcggcgcaat tcggggccgca acagattctg ctgttgattt atgcggcaag tgccgccgtg 600
ttcctgccgt ttgccgaacc ggcacacatc ggaagtgttg acggtacgtt ggcgtgggtt 660
tgttttgctg attgctgctt gaatacgtta atcgggttac gctcgttcgg cgaggcgtt 720
aaacattggg aggtttccaa agtcagcgcg gtaacaacct tgctccccgt gtttaccgta 780
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<210> 402

<211> 277

<212> PRT

<213> *Neisseria meningitidis*

<220>

<221> misc_feature

<222> (262)..(263)

<223> Xaa= any amino acid

<400> 402

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Ala Met Thr Trp Gly Thr Leu Pro Ile Ala Val Arg Gln Val Leu Lys
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Phe Val Asp Ala Pro Thr Leu Val Trp Val Arg Phe Thr Val Ala Ala
35           40           45

Ala Val Leu Phe Val Leu Leu Ala Leu Gly Gly Arg Leu Pro Lys Arg
50           55           60

Arg Asp Phe Ser Trp Cys Ser Phe Arg Leu Leu Leu Leu Gly Val Ala
65           70           75           80

Gly Ile Ser Ala Asn Phe Val Leu Ile Ala Gln Gly Leu His Tyr Ile
85           90           95

Ser Pro Thr Thr Thr Gln Val Leu Trp Gln Ile Ser Pro Phe Thr Met
100          105          110

Ile Val Val Gly Val Leu Val Phe Lys Asp Arg Met Thr Ala Ala Gln
115          120          125

Lys Ile Gly Leu Val Leu Leu Leu Ala Gly Leu Leu Met Phe Phe Asn
130          135          140

Asp Lys Phe Gly Glu Leu Ser Gly Leu Gly Ala Tyr Ala Lys Gly Val
145          150          155          160
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Leu Leu Cys Ala Ala Gly Ser Met Ala Trp Val Cys Tyr Ala Val Ala
 165 170 175
 Gln Lys Leu Leu Ser Ala Gln Phe Gly Pro Gln Gln Ile Leu Leu Leu
 180 185 190
 Ile Tyr Ala Ala Ser Ala Ala Val Phe Leu Pro Phe Ala Glu Pro Ala
 195 200 205
 His Ile Gly Ser Leu Asp Gly Thr Leu Ala Trp Val Cys Phe Ala Tyr
 210 215 220
 Cys Cys Leu Asn Thr Leu Ile Gly Tyr Gly Ser Phe Gly Glu Ala Leu
 225 230 235 240
 Lys His Trp Glu Ala Ser Lys Val Ser Ala Val Thr Thr Leu Leu Pro
 245 250 255
 Val Phe Thr Val Ile Xaa Xaa Leu Leu Gly His Tyr Val Met Pro Glu
 260 265 270
 Thr Phe Ala Ala Pro
 275

<210> 403
 <211> 924
 <212> DNA
 <213> Neisseria meningitidis

<400> 403
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 tgggtgcggt ttaccgtggc ggcggcggta ttgtttgttt tgctggcatt gggcggggcgg 180
 ctgccgaagt ggcgggattt ttcttggtgc tcattcagge tgctgctgct cggcgtggcg 240
 ggcatctcgg caaactttgt gctgattgcc caagggctgc attatatctt gccgaccacg 300
 acgcaggttt tgtggcagat ttgcgcgttt acgatgattg ttgtcgggtg gttggtgttt 360
 aaagaccgga tgactgccgc tcagaaaatc ggcttggttt tgctgcttgc cggtttgctt 420
 atgtttttta acgataaatt cggcgagttg tcgggttttg gcgcgtatgc gaagggcgtg 480
 ttgctgtgtg cggcaggcag tatggcatgg gtgtgttatg ccgtggcgca aaagctgctg 540
 tcggcgcaat tcgggccgca acagattctg ctgttgattt atgcggcaag tgccgccgtg 600
 ttctgcccgt ttgccgaact ggcacacatc ggaagtttgg acggtacgtt ggcgtgggtt 660
 tgttttgcgt attgctgctt gaatacgta atcggttacg gctcgttcgg cgaggcgttg 720
 aaacattggg aggttccaa agtcagcgcg gtaacaacct tgctccccgt gtttaccgta 780
 atattttctt tgctcgggca ttatgtgatg cctgatactt ttgccgcgcc ggatatgaac 840
 ggtttgggtt atgccggcgc actggtcgtg gtcgggggtg cggttacggc ggcggtgggg 900
 gacaggctgt tcaaacgccg ctag 924

<210> 404
 <211> 307
 <212> PRT
 <213> Neisseria meningitidis

<400> 404
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 20 25 30
 Phe Val Asp Ala Pro Thr Leu Val Trp Val Arg Phe Thr Val Ala Ala
 35 40 45
 Ala Val Leu Phe Val Leu Leu Ala Leu Gly Gly Arg Leu Pro Lys Trp
 50 55 60
 Arg Asp Phe Ser Trp Cys Ser Phe Arg Leu Leu Leu Gly Val Ala
 65 70 75 80
 Gly Ile Ser Ala Asn Phe Val Leu Ile Ala Gln Gly Leu His Tyr Ile
 85 90 95
 Ser Pro Thr Thr Thr Gln Val Leu Trp Gln Ile Ser Pro Phe Thr Met
 100 105 110
 Ile Val Val Gly Val Leu Val Phe Lys Asp Arg Met Thr Ala Ala Gln
 115 120 125
 Lys Ile Gly Leu Val Leu Leu Leu Ala Gly Leu Leu Met Phe Phe Asn
 130 135 140
 Asp Lys Phe Gly Glu Leu Ser Gly Leu Gly Ala Tyr Ala Lys Gly Val
 145 150 155 160
 Leu Leu Cys Ala Ala Gly Ser Met Ala Trp Val Cys Tyr Ala Val Ala
 165 170 175
 Gln Lys Leu Leu Ser Ala Gln Phe Gly Pro Gln Gln Ile Leu Leu Leu
 180 185 190
 Ile Tyr Ala Ala Ser Ala Ala Val Phe Leu Pro Phe Ala Glu Leu Ala
 195 200 205
 His Ile Gly Ser Leu Asp Gly Thr Leu Ala Trp Val Cys Phe Ala Tyr
 210 215 220
 Cys Cys Leu Asn Thr Leu Ile Gly Tyr Gly Ser Phe Gly Glu Ala Leu
 225 230 235 240
 Lys His Trp Glu Ala Ser Lys Val Ser Ala Val Thr Thr Leu Leu Pro
 245 250 255
 Val Phe Thr Val Ile Phe Ser Leu Leu Gly^a His Tyr Val Met Pro Asp
 260 265 270
 Thr Phe Ala Ala Pro Asp Met Asn Gly Leu Gly Tyr Ala Gly Ala Leu
 275 280 285
 Val Val Val Gly Gly Ala Val Thr Ala Ala Val Gly Asp Arg Leu Phe
 290 295 300
 Lys Arg Arg
 305

<210> 405
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
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 <222> (1)..(8)
 <223> N= Unknown

<400> 405
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8

<210> 406
 <211> 307
 <212> PRT
 <213> Neisseria gonorrhoeae

<220>
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 <222> (204)..(204)
 <223> Xaa= any amino acid

<400> 406
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 Phe Val Asp Ala Pro Thr Leu Val Trp Val Arg Phe Thr Val Ala Ala
 35 40 45
 Ala Val Leu Phe Val Leu Leu Ala Leu Gly Gly Arg Leu Pro Lys Arg
 50 55 60
 Arg Asp Phe Ser Trp His Ser Phe Arg Leu Leu Leu Leu Gly Val Thr
 65 70 75 80
 Gly Ile Ser Ala Asn Phe Val Leu Ile Ala Gln Gly Leu His Tyr Ile
 85 90 95
 Ser Pro Thr Thr Thr Gln Val Leu Trp Gln Ile Ser Pro Phe Thr Met
 100 105 110
 Ile Val Val Gly Val Leu Val Phe Lys Asp Arg Met Thr Ala Ala Gln
 115 120 125
 Lys Ile Gly Leu Val Leu Leu Val Gly Leu Leu Met Phe Phe Asn
 130 135 140
 Asp Lys Phe Gly Glu Leu Ser Gly Leu Gly Ala Tyr Ala Lys Gly Val
 145 150 155 160
 Leu Leu Cys Ala Ala Gly Ser Met Ala Trp Val Cys Tyr Ala Val Ala
 165 170 175

Gln Lys Leu Leu Ser Ala Gln Phe Gly Pro Gln Gln Ile Leu Leu Leu
 180 185 190

Ile Tyr Ala Ala Ser Ala Ala Val Phe Leu Leu Xaa Ala Glu Pro Ala
 195 200 205

His Ile Gly Ser Leu Asp Gly Thr Leu Ala Trp Val Cys Phe Val Tyr
 210 215 220

Cys Cys Leu Asn Thr Leu Ile Gly Tyr Gly Ser Phe Gly Glu Ala Leu
 225 230 235 240

Lys His Trp Glu Ala Ser Lys Val Ser Ala Val Thr Thr Leu Leu Pro
 245 250 255

Val Phe Thr Val Ile Phe Ser Leu Leu Gly His Tyr Val Met Pro Asp
 260 265 270

Thr Phe Ala Ala Pro Asp Met Asn Gly Leu Gly Tyr Val Gly Ala Leu
 275 280 285

Val Val Val Gly Gly Ala Val Thr Ala Ala Val Gly Asp Arg Pro Phe
 290 295 300

Lys Arg Arg
 305

<210> 407
 <211> 924
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 407
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 ctgccgaagc ggcgggattt ttcttggcat tcattcaggc tgctgctgct cggcgtgacg 240
 ggcatttcgg caaactttgt gctgattgcc caagggtgc attatatctt gccgaccacg 300
 acgcagggtt tgtggcagat ttccgccgtt acgatgattg ttgtcggcgt gttggtgttt 360
 aaagaccgga tgactgccgc gcagaaaatc gggttgggtt tgctgcttgt cggtttgctt 420
 atgtttttta acgacaaatt cggcgagttg tcgggttttg gcgcgtatgc gaagggcgtg 480
 ttgctgtgtg cggcaggcag tatggcctgg gtgtgttatg ccgtggcgca aaagctgctg 540
 tcggcgcaat tcgggccgca acagattctg ctgttgattt atgcggcaag tgccgccgtg 600
 ttctgccgtt ttgccgaacc ggcacacatc ggaagtttg acggtacgtt ggcgtgggtt 660
 tgttttgtgt attgctgctt gaatacgtta atcggttac gctcgttcgg cgaggcgttg 720
 aaacattggg aggcttccaa agtcagcgcg gtaacaacct tgctccccgt gtttaccgta 780
 atattttctt tgctcgggca ttatgtgatg cctgatactt ttgccgcgcc ggatatgaac 840
 gggttgggtt atgtcggcgc actggtcgtg gtcgggggtg cggttacggc ggcgggtggg 900
 gacaggccgt tcaaacgccg ctag 924

<210> 408
 <211> 307
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 408

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			20					25					30			
Phe	Val	Asp	Ala	Pro	Thr	Leu	Val	Trp	Val	Arg	Phe	Thr	Val	Ala	Ala	
		35					40					45				
Ala	Val	Leu	Phe	Val	Leu	Leu	Ala	Leu	Gly	Gly	Arg	Leu	Pro	Lys	Arg	
	50					55					60					
Arg	Asp	Phe	Ser	Trp	His	Ser	Phe	Arg	Leu	Leu	Leu	Leu	Gly	Val	Thr	
65					70					75					80	
Gly	Ile	Ser	Ala	Asn	Phe	Val	Leu	Ile	Ala	Gln	Gly	Leu	His	Tyr	Ile	
				85					90					95		
Ser	Pro	Thr	Thr	Thr	Gln	Val	Leu	Trp	Gln	Ile	Ser	Pro	Phe	Thr	Met	
			100					105						110		
Ile	Val	Val	Gly	Val	Leu	Val	Phe	Lys	Asp	Arg	Met	Thr	Ala	Ala	Gln	
		115					120					125				
Lys	Ile	Gly	Leu	Val	Leu	Leu	Leu	Val	Gly	Leu	Leu	Met	Phe	Phe	Asn	
	130					135					140					
Asp	Lys	Phe	Gly	Glu	Leu	Ser	Gly	Leu	Gly	Ala	Tyr	Ala	Lys	Gly	Val	
145					150					155					160	
Leu	Leu	Cys	Ala	Ala	Gly	Ser	Met	Ala	Trp	Val	Cys	Tyr	Ala	Val	Ala	
			165					170						175		
Gln	Lys	Leu	Leu	Ser	Ala	Gln	Phe	Gly	Pro	Gln	Gln	Ile	Leu	Leu	Leu	
		180						185					190			
Ile	Tyr	Ala	Ala	Ser	Ala	Ala	Val	Phe	Leu	Pro	Phe	Ala	Glu	Pro	Ala	
		195					200					205				
His	Ile	Gly	Ser	Leu	Asp	Gly	Thr	Leu	Ala	Trp	Val	Cys	Phe	Val	Tyr	
	210					215					220					
Cys	Cys	Leu	Asn	Thr	Leu	Ile	Gly	Tyr	Gly	Ser	Phe	Gly	Glu	Ala	Leu	
225					230					235					240	
Lys	His	Trp	Glu	Ala	Ser	Lys	Val	Ser	Ala	Val	Thr	Thr	Leu	Leu	Pro	
			245						250				255			
Val	Phe	Thr	Val	Ile	Phe	Ser	Leu	Leu	Gly	His	Tyr	Val	Met	Pro	Asp	
		260					265						270			
Thr	Phe	Ala	Ala	Pro	Asp	Met	Asn	Gly	Leu	Gly	Tyr	Val	Gly	Ala	Leu	
		275					280					285				
Val	Val	Val	Gly	Gly	Ala	Val	Thr	Ala	Ala	Val	Gly	Asp	Arg	Pro	Phe	
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Lys Arg Arg

305

<210> 409

<211> 933

<212> DNA

<213> *Neisseria meningitidis*

<400> 409

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tttctgccg	cctccgtttt	ttgccggatt	ttccttcgg	ccgcaatata	ggaacggcag	180
accgccgtct	gtttgcggtt	gcaaattcag	gcagtttggc	tacaatcttc	cgcattgtct	240
tcaagaaagc	caaccatgcc	gaccgtccgt	tttaccgaat	ccgtcagcaa	acaagacctt	300
gatgctctgt	tgcagtgggc	aaaagcaagt	tacggtgcag	aaagttgctg	gaaaacgctg	360
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gactgggagg	caggtctgcy	ggagtcttca	gacggcattt	ttctgaatgc	ggacggctgg	480
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gacggstggc	gcaacgagtg	tttcgacctg	accgacggcg	gcggcaacct	cttgttcacg	600
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gtcgatccca	acaaactcga	caatactrc	gccggcggtg	tttcggcgcg	cgaaatgccg	780
tctgaagccg	tgtgtcgcga	aagcagcgaa	gaagccggtt	tggataaaac	gctgcttccg	840
ctcatccgcc	cggtatcgca	gctgcacagc	ctgcgctccg	tcagccgggg	tgtacacaat	900
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<210> 410

<211> 312

<212> PRT

<213> *Neisseria meningitidis*

<220>

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<222> (17)..(17)

<223> Xaa= any amino acid

<220>

<221> misc_feature

<222> (21)..(21)

<223> Xaa= any amino acid

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<222> (34)..(34)

<223> Xaa= any amino acid

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<221> misc_feature

<222> (126)..(126)

<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (140)..(140)
<223> Xaa= any amino acid

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<222> (148)..(148)
<223> Xaa= any amino acid

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Xaa Pro Ala Thr Xaa Phe Gln Thr Pro Arg Phe Asn Ala Glu Xaa Val
20 25 30
Leu Xaa Leu Pro Val Ser Cys Phe Leu Phe Pro Ala Ala Ser Val Phe
35 40 45
Cys Arg Ile Phe Leu Pro Ala Ala Ile Ser Glu Arg Gln Thr Ala Val
50 55 60
Cys Leu Arg Leu Gln Ile Gln Ala Val Trp Leu Gln Ser Ser Ala Leu
65 70 75 80
Ser Ser Arg Lys Pro Thr Met Pro Thr Val Arg Phe Thr Glu Ser Val
85 90 95
Ser Lys Gln Asp Leu Asp Ala Leu Phe Glu Trp Ala Lys Ala Ser Tyr
100 105 110
Gly Ala Glu Ser Cys Trp Lys Thr Leu Tyr Leu Asn Gly Xaa Pro Leu
115 120 125
Gly Asn Leu Ser Pro Glu Trp Val Glu Arg Val Xaa Lys Asp Trp Glu
130 135 140
Ala Gly Cys Xaa Glu Ser Ser Asp Gly Ile Phe Leu Asn Ala Asp Gly
145 150 155 160

Trp Pro Asp Met Gly Gly Arg Leu Gln His Leu Ala Leu Gly Trp His
 165 170 175
 Cys Ala Gly Leu Leu Asp Gly Trp Arg Asn Glu Cys Phe Asp Leu Thr
 180 185 190
 Asp Gly Gly Gly Asn Pro Leu Phe Thr Leu Glu Arg Ala Xaa Xaa Arg
 195 200 205
 Pro Xaa Gly Leu Leu Ser Arg Ala Val His Leu Asn Gly Leu Thr Glu
 210 215 220
 Ser Asp Gly Arg Trp His Phe Trp Ile Gly Arg Arg Ser Pro His Lys
 225 230 235 240
 Ala Val Asp Pro Asn Lys Leu Asp Asn Thr Xaa Ala Gly Gly Val Ser
 245 250 255
 Gly Gly Glu Met Pro Ser Glu Ala Val Cys Arg Glu Ser Ser Glu Glu
 260 265 270
 Ala Gly Leu Asp Lys Thr Leu Leu Pro Leu Ile Arg Pro Val Ser Gln
 275 280 285
 Leu His Ser Leu Arg Ser Val Ser Arg Gly Val His Asn Glu Ile Leu
 290 295 300
 Tyr Val Phe Asp Ala Val Leu Pro
 305 310

<210> 411
 <211> 876
 <212> DNA
 <213> *Neisseria meningitidis*

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 cctttgggca acctgtcgcc ggaatgggtg gaacgcgtca aaaaagactg ggaggcaggc 180
 tgctcggagt cttcagacgg catttttctg aatgcggacg gctggcctga tatgggcgga 240
 cgcttacagc acctcgccct cggttggcac tgtgcggggc tgttggacgg ctggcgcaac 300
 gagtgtttcg acctgaccga cggcgggcgc aaccccttgt tcacgctcga acgcgccgct 360
 ttccgtcctt tcggactgct cagccgcgcc gtccatctca acggtctgac cgaatcggac 420
 ggccgatggc atttctggat aggcaggcgc agtccgcaca aagcagtcga tcccaacaaa 480
 ctcgacaata ctgccgcccg cgggtgtttcc ggcggcgaaa tgccgtctga agccgtgtgt 540
 cgcgaaagca gcgaagaagc cggtttgatg aaaacgctgc ttccgctcat ccgcccggta 600
 tcgcagctgc acagcctgcg ctccgtcagc cggggtgtac acaatgaaat cctgtatgta 660
 ttcgatgccg tcctgcccga aaccttctg cctgaaaatc aggatggcga agtggcgggt 720
 tttgagaaaa tggacatcgg cggctctgtg gatgccatgt tgtcgggaaa catgatgcac 780
 gacgcgcaac tggttacgct ggacgcgttt tgccgttacg gtctgattga tgccgcccat 840
 ccgctgtccg agtggctgga cggcatacgt ttatag 876

<210> 412
 <211> 291
 <212> PRT
 <213> *Neisseria meningitidis*

[illegible]

<210> 413
 <211> 876
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 413
 atgccgaccg tccgtttttac cgaatccgctc agcaaacacg accttgatgc cctattcgag 60
 tgggcaaagg caagttacgg tgcggaaagt tgctggaaaa cgctgtatct gaacgggtctg 120
 cctttgggca atctgtcgcc ggaatgggag gagcgcgtca aaaaagactg ggaggcaggc 180
 tgctcggagt cttcagacgg cattttcctg aatgcggacg gctggccaga tatgggcaga 240
 cgcttgacgc acctcgcccg aatatggaaa gaagcgggac tgcttcacgg ctggcgcgac 300
 gagtggtttcg acctgaccga cggcggcagc aatcccttgt tcgcgctcga acgcgcgcgt 360
 ttccgtccgt tcggactgct cagccgcgcc gtccatctca acggtttggt cgaatcggac 420
 ggccgatggc atttctggat aggcaggcgc agtccgcaca aagcagtcga tcccgcacaaa 480
 ctgcacaata ctgccgccgg cgggtgtttcc agcgggtgaat tgccgtctga aaccgtgtgt 540
 cgcgaaagca gcgaagaagc cgggtttggat aaaacgctgc ttccgctcat ccgcccggta 600
 tcgcagctgc acagcctgcg ccccgctcagc cgggggtgtgc acaatgaaat cctgtatgta 660
 ttcgatgccg tcccgcccg aaccttcctg cctgaaaatc aggatggcga agtggcgggt 720
 tttgagaaaa tggacatcgg cggctctgtt gctgccatgt tgccgggaaa catgatgcac 780
 gacgcgcaac tggttacgct ggacgcgttt tgccgttacg gtctgattga tgccgcccac 840
 ccgctgtccg agtggctgga cggcatacgt ttatag 876

<210> 414
 <211> 291
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 414
 Met Pro Thr Val Arg Phe Thr Glu Ser Val Ser Lys His Asp Leu Asp
 1 5 10 15
 Ala Leu Phe Glu Trp Ala Lys Ala Ser Tyr Gly Ala Glu Ser Cys Trp
 20 25 30
 Lys Thr Leu Tyr Leu Asn Gly Leu Pro Leu Gly Asn Leu Ser Pro Glu
 35 40 45
 Trp Ala Glu Arg Val Lys Lys Asp Trp Glu Ala Gly Cys Ser Glu Ser
 50 55 60
 Ser Asp Gly Ile Phe Leu Asn Ala Asp Gly Trp Pro Asp Met Gly Arg
 65 70 75 80
 Arg Leu Gln His Leu Ala Arg Ile Trp Lys Glu Ala Gly Leu Leu His
 85 90 95
 Gly Trp Arg Asp Glu Cys Phe Asp Leu Thr Asp Gly Gly Ser Asn Pro
 100 105 110
 Leu Phe Ala Leu Glu Arg Ala Ala Phe Arg Pro Phe Gly Leu Leu Ser
 115 120 125
 Arg Ala Val His Leu Asn Gly Leu Val Glu Ser Asp Gly Arg Trp His
 130 135 140

Phe Trp Ile Gly Arg Arg Ser Pro His Lys Ala Val Asp Pro Asp Lys
 145 150 155 160
 Leu Asp Asn Thr Ala Ala Gly Gly Val Ser Ser Gly Glu Leu Pro Ser
 165 170 175
 Glu Thr Val Cys Arg Glu Ser Ser Glu Glu Ala Gly Leu Asp Lys Thr
 180 185 190
 Leu Leu Pro Leu Ile Arg Pro Val Ser Gln Leu His Ser Leu Arg Pro
 195 200 205
 Val Ser Arg Gly Val His Asn Glu Ile Leu Tyr Val Phe Asp Ala Val
 210 215 220
 Leu Pro Glu Thr Phe Leu Pro Glu Asn Gln Asp Gly Glu Val Ala Gly
 225 230 235 240
 Phe Glu Lys Met Asp Ile Gly Gly Leu Leu Ala Ala Met Leu Ser Gly
 245 250 255
 Asn Met Met His Asp Ala Gln Leu Val Thr Leu Asp Ala Phe Cys Arg
 260 265 270
 Tyr Gly Leu Ile Asp Ala Ala His Pro Leu Ser Glu Trp Leu Asp Gly
 275 280 285
 Ile Arg Leu
 290

<210> 415
 <211> 8
 <212> DNA
 <213> Neillia sinensis

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 415
 nnnnnnnn

8

<210> 416
 <211> 372
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 416
 Met Val Ala Arg Arg Ala His Asn Pro Lys Val Val Gly Ser Asn Pro
 1 5 10 15

Ala Pro Ala Thr Lys Tyr Gln Thr Pro Arg Phe Asn Ala Glu Gly Val
 20 25 30

Leu Phe Phe Leu Phe Pro Ala Ala Ser Val Phe Cys Arg Ile Phe Leu

35	40	45
Pro Ala Ala Ile Ser Glu Arg Gln Ala Ala Val Cys Leu Arg Leu Gln 50 55 60		
Ile Gln Ala Val Trp Leu Gln Ser Ser Ala Leu Cys Ser Arg Lys Pro 65 70 75 80		
Ala Met Pro Thr Val Arg Phe Thr Glu Ser Val Ser Lys Gln Asp Leu 85 90 95		
Asp Ala Leu Phe Glu Arg Ala Lys Ala Ser Tyr Gly Ala Glu Ser Cys 100 105 110		
Trp Lys Thr Leu Tyr Leu Asn Arg Leu Pro Leu Gly Asn Leu Ser Pro 115 120 125		
Glu Trp Ala Glu Arg Ile Lys Lys Asp Trp Glu Ala Gly Cys Ser Glu 130 135 140		
Ser Ser Asn Gly Ile Phe Leu Asn Ala Asp Gly Trp Pro Asp Met Gly 145 150 155 160		
Gly Arg Leu Gln His Leu Ala Arg Thr Trp Asn Lys Ala Gly Leu Leu 165 170 175		
His Gly Trp Arg Asn Glu Cys Phe Asp Leu Thr Asp Gly Gly Gly Asn 180 185 190		
Pro Leu Phe Thr Leu Glu Arg Ala Ala Phe Arg Pro Phe Gly Leu Leu 195 200 205		
Ile Arg Ala Val His Leu Asn Gly Leu Val Glu Ser Asn Gly Arg Trp 210 215 220		
His Phe Trp Ile Gly Arg Arg Ser Pro His Lys Ala Val Asp Pro Gly 225 230 235 240		
Lys Leu Asp Asn Ile Ala Gly Gly Gly Val Ser Gly Gly Glu Met Pro 245 250 255		
Ser Glu Ala Val Cys Arg Glu Ser Ser Glu Glu Ala Gly Leu Asp Lys 260 265 270		
Thr Leu Phe Pro Leu Ile Arg Pro Val Ser Arg Leu His Ser Leu Arg 275 280 285		
Pro Val Ser Arg Gly Val His Asn Glu Ile Leu Tyr Val Phe Asp Ala 290 295 300		
Val Leu Pro Glu Thr Phe Leu Pro Glu Asn Gln Asp Gly Glu Val Ala 305 310 315 320		
Gly Phe Glu Lys Met Asp Ile Gly Gly Leu Leu Asp Ala Met Leu Ser 325 330 335		

Lys Asn Met Met His Asp Ala Gln Leu Val Thr Leu Asp Ala Phe Tyr
 340 345 350

Arg Tyr Gly Leu Ile Asp Ala Ala His Pro Leu Ser Glu Trp Leu Asp
 355 360 365

Gly Ile Arg Leu
 370

<210> 417
 <211> 876
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 417
 atgccgaccg tccgtttttac cgaatccgtc agcaaacaag accttgatgc cctgttcgag 60
 cgggcaaaaag caagttacgg tgccgaaagt tgctggaaaa cgctgtatct gaaccgtctt 120
 cttttgggca atctgtcgcc ggaatgggct gagcgcatca aaaaagactg ggaggcaggc 180
 tgctccgagt cttcagacgg catttttctg aatgcggacg gctggccgga tatgggaggc 240
 cgcttcgagc acctcgccc cacaatggaac aaggcggggc tgcttcacgg atggcgcaac 300
 gagtggttgc acctgaccga cggcgggcggc aacccttgt tcacgctcga acgcgccgct 360
 ttccgtccgt tcggactact cagccgcgcc gtccatctca acggtttggt cgaatcgaac 420
 ggcagatggc atttttggat aggcaggcgc agtccgcaca aagcagtcga tcccggcaag 480
 ctcgacaata ttgccggcgg cgggtgttcc ggcggcgaaa tgccgtctga agccgtgtgc 540
 cgcgaaagca gcgaagaagc cgggtttggat aaaacgctgt ttccgctcat ccgcccagta 600
 tcgcggtcgc acagccttcg ccccgtcagc cgaggtgtgc acaatgaaat cctgtatgtg 660
 ttgatgccc tccgtcccga aaccttctg cctgaaaatc aggatggcga ggtagcgggt 720
 tttgaaaaga tggacattgg cggcctattg gatgccatgt tgcgaaaaa catgatgcac 780
 gacgcgaac tggttacgct ggacgcgttt taccgttacg gtctgattga tgccgccccat 840
 ccgctgtccg agtggctgga cggcatacgt ttatag 876

<210> 418
 <211> 291
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 418
 Met Pro Thr Val Arg Phe Thr Glu Ser Val Ser Lys Gln Asp Leu Asp
 1 5 10 15
 Ala Leu Phe Glu Arg Ala Lys Ala Ser Tyr Gly Ala Glu Ser Cys Trp
 20 25 30
 Lys Thr Leu Tyr Leu Asn Arg Leu Pro Leu Gly Asn Leu Ser Pro Glu
 35 40 45
 Trp Ala Glu Arg Ile Lys Lys Asp Trp Glu Ala Gly Cys Ser Glu Ser
 50 55 60
 Ser Asp Gly Ile Phe Leu Asn Ala Asp Gly Trp Pro Asp Met Gly Gly
 65 70 75 80
 Arg Leu Gln His Leu Ala Arg Thr Trp Asn Lys Ala Gly Leu Leu His
 85 90 95
 Gly Trp Arg Asn Glu Cys Phe Asp Leu Thr Asp Gly Gly Gly Asn Pro

100	105	110
Leu Phe Thr Leu Glu Arg Ala Ala Phe Arg Pro Phe Gly Leu Leu Ser 115 120 125		
Arg Ala Val His Leu Asn Gly Leu Val Glu Ser Asn Gly Arg Trp His 130 135 140		
Phe Trp Ile Gly Arg Arg Ser Pro His Lys Ala Val Asp Pro Gly Lys 145 150 155 160		
Leu Asp Asn Ile Ala Gly Gly Gly Val Ser Gly Gly Glu Met Pro Ser 165 170 175		
Glu Ala Val Cys Arg Glu Ser Ser Glu Glu Ala Gly Leu Asp Lys Thr 180 185 190		
Leu Phe Pro Leu Ile Arg Pro Val Ser Arg Leu His Ser Leu Arg Pro 195 200 205		
Val Ser Arg Gly Val His Asn Glu Ile Leu Tyr Val Phe Asp Ala Val 210 215 220		
Leu Pro Glu Thr Phe Leu Pro Glu Asn Gln Asp Gly Glu Val Ala Gly 225 230 235 240		
Phe Glu Lys Met Asp Ile Gly Gly Leu Leu Asp Ala Met Leu Ser Lys 245 250 255		
Asn Met Met His Asp Ala Gln Leu Val Thr Leu Asp Ala Phe Tyr Arg 260 265 270		
Tyr Gly Leu Ile Asp Ala Ala His Pro Leu Ser Glu Trp Leu Asp Gly 275 280 285		
Ile Arg Leu 290		

<210> 419
 <211> 566
 <212> DNA
 <213> Neisseria meningitidis

<400> 419							
atgaatagac	ccaagcaacc	cttcttccgt	cccgaagtcg	ccgttgcccg	ccaaaccagc		60
ctgacgggta	aagtgattct	gacacgaccg	ttgtcatttt	ccctatggac	gacatttgca		120
tcgatatctg	cgttattgat	tatcctgttt	ttgatatttg	gtaactatac	gcgaaagaca		180
acagtggagg	gacaaatfff	acctgcatcg	ggcgtaatca	gggtgtatgc	accggatacg		240
rgkacaatta	cagcgaaatt	cgtggaagat	ggmsaaaagg	ttaaggctgg	cgacaagcta		300
tttgcgcttt	cgacctcacg	tttcggcgca	ggaggtagcg	tcgagcagca	gttgaaaacg		360
gaggcagttt	tgaagaaaac	gttggcagaa	caggaactgg	gtcgtctgaa	gctgatacac		420
gggaatgaaa	cgcgcacgct	ttaaagcaact	gtcgaacggt	tggaaaacca	ggaactccat		480
atttcgcaac	agatagacgg	tcagaaaagg	cgcattagac	ttgcggaaga	aatgttgcag		540
aaatatcggt	tcctatccgc	caatga					566

<210> 420

<211> 188
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (81)..(81)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (92)..(92)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (187)..(187)
<223> Xaa= any amino acid

<400> 420
Met Asn Arg Pro Lys Gln Pro Phe Phe Arg Pro Glu Val Ala Val Ala
1 5 10 15
Arg Gln Thr Ser Leu Thr Gly Lys Val Ile Leu Thr Arg Pro Leu Ser
20 25 30
Phe Ser Leu Trp Thr Thr Phe Ala Ser Ile Ser Ala Leu Leu Ile Ile
35 40 45
Leu Phe Leu Ile Phe Gly Asn Tyr Thr Arg Lys Thr Thr Val Glu Gly
50 55 60
Gln Ile Leu Pro Ala Ser Gly Val Ile Arg Val Tyr Ala Pro Asp Thr
65 70 75 80
Xaa Thr Ile Thr Ala Lys Phe Val Glu Asp Gly Xaa Lys Val Lys Ala
85 90 95
Gly Asp Lys Leu Phe Ala Leu Ser Thr Ser Arg Phe Gly Ala Gly Gly
100 105 110
Ser Val Gln Gln Gln Leu Lys Thr Glu Ala Val Leu Lys Lys Thr Leu
115 120 125
Ala Glu Gln Glu Leu Gly Arg Leu Lys Leu Ile His Gly Asn Glu Thr
130 135 140
Arg Ser Leu Lys Ala Thr Val Glu Arg Leu Glu Asn Gln Glu Leu His
145 150 155 160
Ile Ser Gln Gln Ile Asp Gly Gln Lys Arg Arg Ile Arg Leu Ala Glu
165 170 175
Glu Met Leu Gln Lys Tyr Arg Phe Leu Ser Xaa Gln
180 185

<210> 421
<211> 717
<212> DNA
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (21)..(21)
<223> N= Unknown

<220>
<221> misc_feature
<222> (252)..(252)
<223> N= Unknown

<220>
<221> misc_feature
<222> (262)..(262)
<223> N= Unknown

<220>
<221> misc_feature
<222> (695)..(696)
<223> N= Unknown

<400> 421
atgaatagac ccaagcaacc nttcttccgt cccgaagtcg ccggtgcccg ccaaaccagc 60
ctgacgggta aagtgattct gacacgaccg ttgtcatttt ccctatggac gacatttgca 120
tcgatatctg cgttattgat tatcctgttt ttgatatttg gtaactatac gcgaaagaca 180
acagtggagg gacaaatttt acctgcatcg ggcgtaatca ggggtgtatgc accggatacg 240
gggacaatta cngcgaaatt cntggaagat ggagaaaagg ttaaggctgg cgacaagcta 300
tttgcgcttt cgacctcacg tttcggcgca ggagatagcg tgcagcagca gttgaaaacg 360
gaggcagttt tgaagaaaac gttggcagaa caggaactgg gtcgtctgaa gctgatacac 420
gggaatgaaa cgcgcagcct taaagcaact gtcgaacgtt tggaaaacca ggaactccat 480
atttcgcaac agatagacgg tcagaaaagg cgcattagac ttgcggaaga aatgttgcag 540
aaatatcggt tcctatccgc caatgatgca gtgccaaaac aagaaatgat gaatgtcaag 600
gcagagcttt tagagcagaa agccaaactt gatgcctacc gccgagaaga agtcgggctg 660
cttcaggaaa tccgcacgca gaatctgaca ttggnnagcc tcccccaagc ggcatga 717

<210> 422
<211> 238
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (88)..(88)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (232)..(232)
<223> Xaa= any amino acid

<400> 422
Met Asn Arg Pro Lys Gln Pro Phe Phe Arg Pro Glu Val Ala Val Ala

1	5	10	15
Arg Gln Thr Ser Leu Thr Gly Lys Val Ile Leu Thr Arg Pro Leu Ser	20	25	30
Phe Ser Leu Trp Thr Thr Phe Ala Ser Ile Ser Ala Leu Leu Ile Ile	35	40	45
Leu Phe Leu Ile Phe Gly Asn Tyr Thr Arg Lys Thr Thr Val Glu Gly	50	55	60
Gln Ile Leu Pro Ala Ser Gly Val Ile Arg Val Tyr Ala Pro Asp Thr	65	70	75
Gly Thr Ile Thr Ala Lys Phe Xaa Glu Asp Gly Glu Lys Val Lys Ala	85	90	95
Gly Asp Lys Leu Phe Ala Leu Ser Thr Ser Arg Phe Gly Ala Gly Asp	100	105	110
Ser Val Gln Gln Gln Leu Lys Thr Glu Ala Val Leu Lys Lys Thr Leu	115	120	125
Ala Glu Gln Glu Leu Gly Arg Leu Lys Leu Ile His Gly Asn Glu Thr	130	135	140
Arg Ser Leu Lys Ala Thr Val Glu Arg Leu Glu Asn Gln Glu Leu His	145	150	155
Ile Ser Gln Gln Ile Asp Gly Gln Lys Arg Arg Ile Arg Leu Ala Glu	165	170	175
Glu Met Leu Gln Lys Tyr Arg Phe Leu Ser Ala Asn Asp Ala Val Pro	180	185	190
Lys Gln Glu Met Met Asn Val Lys Ala Glu Leu Leu Glu Gln Lys Ala	195	200	205
Lys Leu Asp Ala Tyr Arg Arg Glu Glu Val Gly Leu Leu Gln Glu Ile	210	215	220
Arg Thr Gln Asn Leu Thr Leu Xaa Ser Leu Pro Gln Ala Ala	225	230	235

<210> 423
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 423
 nnnnnnnn

<210> 424
 <211> 188
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 424
 Met Asn Arg Pro Lys Gln Pro Phe Phe Arg Pro Glu Val Ala Ile Ala
 1 5 10 15
 Arg Gln Thr Ser Leu Thr Gly Lys Val Ile Leu Thr Arg Pro Leu Ser
 20 25 30
 Phe Ser Leu Trp Thr Thr Phe Ala Ser Ile Ser Ala Leu Leu Ile Ile
 35 40 45
 Leu Phe Leu Ile Phe Gly Asn Tyr Thr Arg Lys Thr Thr Met Glu Gly
 50 55 60
 Gln Ile Leu Pro Ala Ser Gly Val Ile Arg Val Tyr Ala Pro Asp Thr
 65 70 75 80
 Gly Thr Ile Thr Ala Lys Phe Val Glu Asp Gly Glu Lys Val Lys Ala
 85 90 95
 Gly Asp Lys Leu Phe Ala Leu Ser Thr Ser Arg Phe Gly Ala Gly Gly
 100 105 110
 Ser Val Gln Gln Gln Leu Lys Thr Glu Ala Val Leu Lys Lys Thr Leu
 115 120 125
 Ala Glu Gln Glu Leu Gly Arg Leu Lys Leu Ile His Glu Asn Glu Thr
 130 135 140
 Arg Ser Leu Lys Ala Thr Val Glu Arg Leu Glu Asn Gln Lys Leu His
 145 150 155 160
 Ile Ser Gln Gln Ile Asp Gly Gln Lys Arg Arg Ile Arg Leu Ala Glu
 165 170 175
 Glu Met Leu Arg Lys Tyr Arg Phe Leu Ser Ala Gln
 180 185

<210> 425
 <211> 545
 <212> DNA
 <213> Neisseria meningitidis

<400> 425
 atgctgaata ctttttttgc cgtattgggc ggctgcctgc tgctttgccg tgcggcaaat 60
 ccgtaaatac ggcggtacag ccgcaaaacg cggtacaaag cgcgccgaaa ccggttttca 120
 aagtcataata ttcgacaat acggcgattg ccggttttga tttgggacaa agcagcgaag 180
 gcaaaaccaa cgacggcaaa aaacaaatca gttatccgat taaaggcttg ccggaacaaa 240
 atgttatccg actgatcggc aagcatcccg gcgacttgga agccgtcagc ggcaaatgta 300
 tggaaaccga tgataaggac agtccggcag gttgggcaga aaacggcgtg tgccatacct 360
 tgtttgcaa actggtgggc aatatcgccg aagacggcgg caaactgacg gattacctag 420
 tttcgcattgc cgccctgcaa ccctatcagg caggcaaaag cggctatgcc gccgtgcaga 480

acggacgcta tgtgctggaa atcgacagcg aaggggcggt ttatttccgc cgccgccatt 540
attga 545

<210> 426
<211> 181
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (15)..(15)
<223> Xaa= any amino acid

<400> 426
Met Leu Asn Thr Phe Phe Ala Val Leu Gly Gly Cys Leu Leu Xaa Leu
1 5 10 15
Pro Cys Gly Lys Ser Val Asn Thr Ala Val Gln Pro Gln Asn Ala Val
20 25 30
Gln Ser Ala Pro Lys Pro Val Phe Lys Val Ile Tyr Ile Asp Asn Thr
35 40 45
Ala Ile Ala Gly Leu Asp Leu Gly Gln Ser Ser Glu Gly Lys Thr Asn
50 55 60
Asp Gly Lys Lys Gln Ile Ser Tyr Pro Ile Lys Gly Leu Pro Glu Gln
65 70 75 80
Asn Val Ile Arg Leu Ile Gly Lys His Pro Gly Asp Leu Glu Ala Val
85 90 95
Ser Gly Lys Cys Met Glu Thr Asp Asp Lys Asp Ser Pro Ala Gly Trp
100 105 110
Ala Glu Asn Gly Val Cys His Thr Leu Phe Ala Lys Leu Val Gly Asn
115 120 125
Ile Ala Glu Asp Gly Gly Lys Leu Thr Asp Tyr Leu Val Ser His Ala
130 135 140
Ala Leu Gln Pro Tyr Gln Ala Gly Lys Ser Gly Tyr Ala Ala Val Gln
145 150 155 160
Asn Gly Arg Tyr Val Leu Glu Ile Asp Ser Glu Gly Ala Phe Tyr Phe
165 170 175
Arg Arg Arg His Tyr
180

<210> 427
<211> 546
<212> DNA
<213> Neisseria meningitidis

<400> 427

atgctgaaaa	catcttttgc	cgtattgggc	ggctgcctgc	tgcttgccgc	ctgcggcaaa	60
tccgaaaata	cggcggaaca	gccgaaaaac	gcggtacaaa	gcgcgccgaa	accggttttc	120
aaagtcaaat	atatcgacaa	tacggcgatt	gccggtttgg	atttgggaca	aagcagcgaa	180
ggcaaaacca	acgacggcaa	aaaacaaatc	agttatccga	ttaaaggctt	gccggaacaa	240
aatgttatcc	gactgatcgg	caagcatccc	ggcgacttgg	aagccgtcag	cggcaaattgt	300
atggaaaccg	atgataagga	cagtccggca	ggttgggcag	aaaacggcgt	gtgccatacc	360
ttgtttgcc	aactggtggg	caatatcgcc	gaagacggcg	gcaaactgac	ggattaccta	420
gtttcgcatg	ccgccctgca	accctatcag	gcaggcaaaa	gcggctatgc	cgccgtgcag	480
aacggacgct	atgtgctgga	aatcgacagc	gaaggggcgt	tttatttccg	ccgccgccat	540
tattga						546

<210> 428
 <211> 181
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 428
 Met Leu Lys Thr Ser Phe Ala Val Leu Gly Gly Cys Leu Leu Leu Ala
 1 5 10 15
 Ala Cys Gly Lys Ser Glu Asn Thr Ala Glu Gln Pro Gln Asn Ala Val
 20 25 30
 Gln Ser Ala Pro Lys Pro Val Phe Lys Val Lys Tyr Ile Asp Asn Thr
 35 40 45
 Ala Ile Ala Gly Leu Asp Leu Gly Gln Ser Ser Glu Gly Lys Thr Asn
 50 55 60
 Asp Gly Lys Lys Gln Ile Ser Tyr Pro Ile Lys Gly Leu Pro Glu Gln
 65 70 75 80
 Asn Val Ile Arg Leu Ile Gly Lys His Pro Gly Asp Leu Glu Ala Val
 85 90 95
 Ser Gly Lys Cys Met Glu Thr Asp Asp Lys Asp Ser Pro Ala Gly Trp
 100 105 110
 Ala Glu Asn Gly Val Cys His Thr Leu Phe Ala Lys Leu Val Gly Asn
 115 120 125
 Ile Ala Glu Asp Gly Gly Lys Leu Thr Asp Tyr Leu Val Ser His Ala
 130 135 140
 Ala Leu Gln Pro Tyr Gln Ala Gly Lys Ser Gly Tyr Ala Ala Val Gln
 145 150 155 160
 Asn Gly Arg Tyr Val Leu Glu Ile Asp Ser Glu Gly Ala Phe Tyr Phe
 165 170 175
 Arg Arg Arg His Tyr
 180

<210> 429
 <211> 546
 <212> DNA

<400> 429

<210> 430

<211> 181

<212> PRT

<400> 430

[illegible]

<210> 431
<211> 695
<212> DNA
<213> Neisseria meningitidis

<400> 431
atggaagatt tatatataat actcgctttg ggtttggttg cgatgattgc cggatttatc 60
gatgcgattg cgggcggggg tggtttgatt acgctgcccg cactcttggtt ggcagggtatt 120
cctcccgtgt cggcaattgc caccaacaag ctgcaagcag ccgctgctac gttttcagct 180
acggtttctt ttgcacgcaa aggtttgatt gattggaaga aaggtctccc gattgccgca 240
gcatcgtttg taggcggcgt ggccgggtgca ttatcgggtca gcttggtttc caaagatatt 300
ctgctggcgg tcgtgccggg tttgttgata tttgtcgcac tgtattttgt gttttcgcgc 360
aagctcgacg gcagtaagga aggcaaagcc agaatgtctt tttttctggt cgggctgacg 420
gtcgcaccgc ttttggtttt ttacgacggg gtgttcggac cgggtgtcgg ctcgtttttt 480
ctgattgcct ttattgtttt gctcgggtgc aagctgttga acgcgatgtc ttacaccaaa 540
ttggcgaacg ttgcctgcaa tcttggttcg ctatcgggtat tcttgctgca cggttcgatt 600
attttcccgga ttgcggcaac gatggcgggtc ggtgcgtttg tcggtgcgaa tttagggtgcg 660
agatttgccg tacgcttcgg ttcgaagctg attaa 695

<210> 432
<211> 231
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (142)..(142)
<223> Xaa= any amino acid

<400> 432
Met Glu Asp Leu Tyr Ile Ile Leu Ala Leu Gly Leu Val Ala Met Ile
1 5 10 15
Ala Gly Phe Ile Asp Ala Ile Ala Gly Gly Gly Gly Leu Ile Thr Leu
20 25 30
Pro Ala Leu Leu Leu Ala Gly Ile Pro Pro Val Ser Ala Ile Ala Thr
35 40 45
Asn Lys Leu Gln Ala Ala Ala Thr Phe Ser Ala Thr Val Ser Phe
50 55 60
Ala Arg Lys Gly Leu Ile Asp Trp Lys Lys Gly Leu Pro Ile Ala Ala
65 70 75 80
Ala Ser Phe Val Gly Gly Val Ala Gly Ala Leu Ser Val Ser Leu Val
85 90 95
Ser Lys Asp Ile Leu Leu Ala Val Val Pro Val Leu Leu Ile Phe Val
100 105 110
Ala Leu Tyr Phe Val Phe Ser Pro Lys Leu Asp Gly Ser Lys Glu Gly
115 120 125
Lys Ala Arg Met Ser Phe Phe Leu Phe Gly Leu Thr Val Xaa Thr Ala
130 135 140

Phe Gly Phe Leu Arg Arg Cys Val Arg Thr Gly Cys Arg Leu Val Phe
 145 150 155 160

Ser Asp Cys Leu Tyr Cys Phe Ala Arg Leu Gln Ala Val Glu Arg Asp
 165 170 175

Val Leu His Gln Ile Gly Glu Arg Cys Leu Gln Ser Trp Phe Ala Ile
 180 185 190

Gly Ile Pro Ala Ala Arg Phe Asp Tyr Phe Pro Asp Cys Gly Asn Asp
 195 200 205

Gly Gly Arg Cys Val Cys Arg Cys Glu Phe Arg Cys Glu Ile Cys Arg
 210 215 220

Thr Leu Arg Phe Glu Ala Asp
 225 230

<210> 433
 <211> 789
 <212> DNA
 <213> Neisseria meningitidis

<400> 433
 atggaagatt tatatataat actcgctttg ggtttggttg cgatgattgc cggattttatc 60
 gatgcgattg cgggcggggg tggtttgatt acgctgcccg cactcttggt ggcaggtatt 120
 cctcccgtgt cggcaattgc caccaacaag ctgcaagcag ccgctgctac gttttcagct 180
 acggtttctt ttgcacgcaa aggtttgatt gattggaaga aaggtctccc gattgcccga 240
 gcatcgcttg taggcggcgt ggccggtgca ttatcggtca gcttggtttc caaagatatt 300
 ctgctggcgg tcgtgccggt tttgttgata tttgtcgcac tgtattttgt gttttcgccc 360
 aagctcgacg gcagtaagga aggcaaagcc agaatgtctt tttttctggt cgggctgacg 420
 gtgcacccgc ttttggtttt ttacgacggt gtgttcggac cgggtgtcgg ctcgtttttt 480
 ctgattgcct ttattgtttt gctcggtcgc aagctgttga acgcgatgtc ttacaccaaa 540
 ttggcgaacg ttgacctgaa tcttggttcg ctatcggtat tcctgctgca cggttcgatt 600
 attttcccga ttgcggcaac gatggcggtc ggtgcgtttg tcgggtgcgaa tttaggtgcg 660
 agatttgccg tccgcttcgg ttcgaagctg attaagccgc tgctgattgt catcagcatt 720
 tcgatggctg tgaaattggt gatagacgag agaaatccgc tgtatcagat gattgtttcg 780
 atgttttaa 789

<210> 434
 <211> 262
 <212> PRT
 <213> Neisseria meningitidis

<400> 434
 Met Glu Asp Leu Tyr Ile Ile Leu Ala Leu Gly Leu Val Ala Met Ile
 1 5 10 15
 Ala Gly Phe Ile Asp Ala Ile Ala Gly Gly Gly Gly Leu Ile Thr Leu
 20 25 30
 Pro Ala Leu Leu Leu Ala Gly Ile Pro Pro Val Ser Ala Ile Ala Thr
 35 40 45
 Asn Lys Leu Gln Ala Ala Ala Ala Thr Phe Ser Ala Thr Val Ser Phe
 50 55 60

Ala Arg Lys Gly Leu Ile Asp Trp Lys Lys Gly Leu Pro Ile Ala Ala
65 70 75 80

Ala Ser Phe Val Gly Gly Val Ala Gly Ala Leu Ser Val Ser Leu Val
85 90 95

Ser Lys Asp Ile Leu Leu Ala Val Val Pro Val Leu Leu Ile Phe Val
100 105 110

Ala Leu Tyr Phe Val Phe Ser Pro Lys Leu Asp Gly Ser Lys Glu Gly
115 120 125

Lys Ala Arg Met Ser Phe Phe Leu Phe Gly Leu Thr Val Ala Pro Leu
130 135 140

Leu Gly Phe Tyr Asp Gly Val Phe Gly Pro Gly Val Gly Ser Phe Phe
145 150 155 160

Leu Ile Ala Phe Ile Val Leu Leu Gly Cys Lys Leu Leu Asn Ala Met
165 170 175

Ser Tyr Thr Lys Leu Ala Asn Val Ala Cys Asn Leu Gly Ser Leu Ser
180 185 190

Val Phe Leu Leu His Gly Ser Ile Ile Phe Pro Ile Ala Ala Thr Met
195 200 205

Ala Val Gly Ala Phe Val Gly Ala Asn Leu Gly Ala Arg Phe Ala Val
210 215 220

Arg Phe Gly Ser Lys Leu Ile Lys Pro Leu Leu Ile Val Ile Ser Ile
225 230 235 240

Ser Met Ala Val Lys Leu Leu Ile Asp Glu Arg Asn Pro Leu Tyr Gln
245 250 255

Met Ile Val Ser Met Phe
260

<210> 435
<211> 789
<212> DNA
<213> Neisseria meningitidis

<400> 435
atggaagatt tatacataat actcgctttg ggtttggttg cgatgattgc cggattttatc 60
gatgcgattg cgggtggggg tggtttgatt acgctgcctg cactcttggt ggcaggtatt 120
cctcccgtgt cggcaattgc caccaacaag ctgcaagcag ccgctgctac gttttcggct 180
acggttttctt ttgcacgcaa aggttttgatt gattggaaga aaggtctccc gattgcggca 240
gcatcgtttg caggcggcgt ggtcgggtgca ttatcggtca gcttggtttc caaagatatt 300
ctgctggcgg tcgtgccggt tttgttgata tttgtcgcgc tgtattttgt gttttcggcc 360
aagctcgacg gcagtaagga aggcaaagcc agaatgtctt tttttctggt cggctctgacg 420
gttgaccacc ttttggtttt ttacgacggt gtgttcggac cgggtgtcgg ctcgtttttt 480
ctgattgcct ttattgtttt gctcggctgc aagctgttga acgcgatgac ttacacaaa 540
ttggcgaacg ttgcctgcaa tcttggttcg ctatcggtat tcctgctgca cggttcgatt 600
attttcccga ttgcggcaac gatggcggtc ggtgcgtttg tcggtgcgaa tttaggtgcg 660

agatttgccg	tccgcttcgg	ttcgaagctg	attaagccgc	tgctgattgt	catcagcatt	720
tcgatggctg	tgaaattggt	gatagacgag	agaaatccgc	tgtatcagat	gattgtttcg	780
atgttttaa						789

<210> 436
 <211> 262
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 436
 Met Glu Asp Leu Tyr Ile Ile Leu Ala Leu Gly Leu Val Ala Met Ile
 1 5 10 15
 Ala Gly Phe Ile Asp Ala Ile Ala Gly Gly Gly Gly Leu Ile Thr Leu
 20 25 30
 Pro Ala Leu Leu Leu Ala Gly Ile Pro Pro Val Ser Ala Ile Ala Thr
 35 40 45
 Asn Lys Leu Gln Ala Ala Ala Ala Thr Phe Ser Ala Thr Val Ser Phe
 50 55 60
 Ala Arg Lys Gly Leu Ile Asp Trp Lys Lys Gly Leu Pro Ile Ala Ala
 65 70 75 80
 Ala Ser Phe Ala Gly Gly Val Val Gly Ala Leu Ser Val Ser Leu Val
 85 90 95
 Ser Lys Asp Ile Leu Leu Ala Val Val Pro Val Leu Leu Ile Phe Val
 100 105 110
 Ala Leu Tyr Phe Val Phe Ser Pro Lys Leu Asp Gly Ser Lys Glu Gly
 115 120 125
 Lys Ala Arg Met Ser Phe Phe Leu Phe Gly Leu Thr Val Ala Pro Leu
 130 135 140
 Leu Gly Phe Tyr Asp Gly Val Phe Gly Pro Gly Val Gly Ser Phe Phe
 145 150 155 160
 Leu Ile Ala Phe Ile Val Leu Leu Gly Cys Lys Leu Leu Asn Ala Met
 165 170 175
 Ser Tyr Thr Lys Leu Ala Asn Val Ala Cys Asn Leu Gly Ser Leu Ser
 180 185 190
 Val Phe Leu Leu His Gly Ser Ile Ile Phe Pro Ile Ala Ala Thr Met
 195 200 205
 Ala Val Gly Ala Phe Val Gly Ala Asn Leu Gly Ala Arg Phe Ala Val
 210 215 220
 Arg Phe Gly Ser Lys Leu Ile Lys Pro Leu Leu Ile Val Ile Ser Ile
 225 230 235 240
 Ser Met Ala Val Lys Leu Leu Ile Asp Glu Arg Asn Pro Leu Tyr Gln

245

250

255

Met Ile Val Ser Met Phe
260

<210> 437
<211> 8
<212> DNA
<213> Neisseria gonorrhoeae

<220>
<221> misc_feature
<222> (1)..(8)
<223> N= Unknown

<400> 437
nnnnnnnn

8

<210> 438
<211> 231
<212> PRT
<213> Neisseria gonorrhoeae

<400> 438

Met Glu Asp Leu Tyr Ile Ile Leu Ala Leu Gly Leu Val Ala Met Ile
1 5 10 15

Ala Gly Phe Ile Asp Ala Ile Ala Gly Gly Gly Gly Leu Ile Thr Leu
20 25 30

Pro Ala Leu Leu Leu Ala Gly Ile Pro Pro Val Ser Ala Ile Ala Thr
35 40 45

Asn Lys Leu Gln Ala Ala Ala Ala Thr Phe Ser Ala Thr Val Ser Phe
50 55 60

Ala Arg Lys Gly Leu Ile Asp Trp Lys Lys Gly Leu Pro Ile Ala Ala
65 70 75 80

Ala Ser Phe Ala Gly Gly Val Val Gly Ala Leu Ser Val Ser Leu Val
85 90 95

Ser Lys Asp Ile Leu Leu Ala Val Val Pro Val Leu Leu Ile Phe Val
100 105 110

Ala Leu Tyr Phe Val Phe Ser Pro Lys Leu Asp Gly Ser Lys Glu Gly
115 120 125

Lys Ala Arg Met Ser Phe Phe Leu Phe Gly Leu Thr Val Ala Thr Ala
130 135 140

Phe Gly Phe Leu Arg Arg Cys Val Arg Thr Gly Cys Arg Leu Val Phe
145 150 155 160

Ser Asp Cys Leu Tyr Cys Phe Ala Arg Leu Gln Ala Val Glu Arg Asp
165 170 175

Val Leu His Gln Ile Gly Glu Arg Cys Leu Gln Ser Trp Phe Ala Ile
 180 185 190

Gly Ile Pro Ala Ala Arg Phe Asp Tyr Phe Pro Asp Cys Gly Asn Asp
 195 200 205

Gly Gly Arg Cys Val Cys Arg Cys Glu Phe Arg Cys Glu Ile Cys Arg
 210 215 220

Pro Leu Arg Phe Glu Ala Asp
 225 230

<210> 439
 <211> 789
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 439
 atggaagatt tatacataat actcgctttg gggtttggtg cgatgatcgc cggattttatc 60
 gatgcgattg cgggcggggg tgggtttgatt acgctgcctg cactcttggt ggcaggtatt 120
 cctcccgtgt cggcaattgc caccaacaag ctgcaagcag ccgctgctac gttttcggct 180
 acggtttctt ttgcacgcaa aggtttgatt gattggaaga aaggtctccc gattgccgca 240
 gcatcgtttg caggcggcgt ggtcgggtgca ttatcggtca gcttggtttc caaagatatt 300
 ttgctggcgg tcgtgccggg tttgttgata tttgtcgcgc tgtattttgt gttttcgcgc 360
 aagctcgacg gcagtaagga aggcaaagcc agaattgtct tttttctatt cgggctgacg 420
 gttgcaccgc ttttggtttt ttacgacggg gtgttcggac cgggtgtcgg ctcgtttttt 480
 ctgattgcct ttattgtttt gctcggctgc aagctgttga acgcgatgtc ttacaccaa 540
 ttggcgaacg ttgcttgcaa tcttggttcg ctatcggtat tcctgctgca cggttcgatt 600
 attttcccga ttgtggcaac gatggcggtc ggtgcggttg tcggtgcgaa tttaggtgcg 660
 agatttgccg tccgcttcgg ttcgaagctg attaagccgc tgcgtgattgt catcagcatt 720
 tcgatggctg tgaaattgtt gatagacgag agaaatccgc tgtatcagat gattgtttcg 780
 atgttttaa 789

<210> 440
 <211> 262
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 440
 Met Glu Asp Leu Tyr Ile Ile Leu Ala Leu Gly Leu Val Ala Met Ile
 1 5 10 15
 Ala Gly Phe Ile Asp Ala Ile Ala Gly Gly Gly Gly Leu Ile Thr Leu
 20 25 30
 Pro Ala Leu Leu Leu Ala Gly Ile Pro Pro Val Ser Ala Ile Ala Thr
 35 40 45
 Asn Lys Leu Gln Ala Ala Ala Thr Phe Ser Ala Thr Val Ser Phe
 50 55 60
 Ala Arg Lys Gly Leu Ile Asp Trp Lys Lys Gly Leu Pro Ile Ala Ala
 65 70 75 80
 Ala Ser Phe Ala Gly Gly Val Val Gly Ala Leu Ser Val Ser Leu Val
 85 90 95

Ser Lys Asp Ile Leu Leu Ala Val Val Pro Val Leu Leu Ile Phe Val
 100 105 110
 Ala Leu Tyr Phe Val Phe Ser Pro Lys Leu Asp Gly Ser Lys Glu Gly
 115 120 125
 Lys Ala Arg Met Ser Phe Phe Leu Phe Gly Leu Thr Val Ala Pro Leu
 130 135 140
 Leu Gly Phe Tyr Asp Gly Val Phe Gly Pro Gly Val Gly Ser Phe Phe
 145 150 155 160
 Leu Ile Ala Phe Ile Val Leu Leu Gly Cys Lys Leu Leu Asn Ala Met
 165 170 175
 Ser Tyr Thr Lys Leu Ala Asn Val Ala Cys Asn Leu Gly Ser Leu Ser
 180 185 190
 Val Phe Leu Leu His Gly Ser Ile Ile Phe Pro Ile Val Ala Thr Met
 195 200 205
 Ala Val Gly Ala Phe Val Gly Ala Asn Leu Gly Ala Arg Phe Ala Val
 210 215 220
 Arg Phe Gly Ser Lys Leu Ile Lys Pro Leu Leu Ile Val Ile Ser Ile
 225 230 235 240
 Ser Met Ala Val Lys Leu Leu Ile Asp Glu Arg Asn Pro Leu Tyr Gln
 245 250 255
 Met Ile Val Ser Met Phe
 260

<210> 441
 <211> 635
 <212> DNA
 <213> Neisseria meningitidis

<400> 441
 ctgctagggt attgcatcgg ttatcggtac ggctgttgca gcaaaaccag ccgcagacgg 60
 attatttggg caaattcgga tcgttttggg cgagattttt ggttttctgg gactgtatga 120
 cgtctatgct tcggcatggg ttgtcgttat catgatgttt ttgggtgggtt ctaccagttt 180
 gtgcctgatt cgcaatgtgc cgccgttctg gcgcgaaatg aagtcttttc gggaaaagggt 240
 taaagaaaaa tctctggcgg cgatgcgcca ttcttcgctg ttggatgtaa aaattgcgcc 300
 cgaggttgcc aaacgttatc tggaagtaca aggttttcag gggaaaacca ttaaccgtga 360
 agacgggtcg gttctgattg ccgccaaaaa aggcacaatg aacaaatggg gctatatctt 420
 tgcccatggt gctttgattg tcatttgcct gggcgggttg atagacagta acctgctggt 480
 gaaactgggt atgctgaccg gtcggattgt tccggacaat caggcgggtt atgccaagga 540
 tttcaagccc gaaagtattt tgggtgcgtc caatctctca tttaggggca acgtcaatat 600
 ttccgagggg cagagtgcgg atgtgggttt cctga 635

<210> 442
 <211> 210
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (31)..(31)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (181)..(181)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (186)..(186)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (201)..(201)
 <223> Xaa= any amino acid

<400> 442
 Leu Leu Gly Ile Ala Ser Val Ile Gly Thr Leu Leu Gln Gln Asn Gln
 1 5 10 15
 Pro Gln Thr Asp Tyr Leu Val Lys Phe Gly Ser Phe Trp Ala Xaa Ile
 20 25 30
 Phe Gly Phe Leu Gly Leu Tyr Asp Val Tyr Ala Ser Ala Trp Phe Val
 35 40 45
 Val Ile Met Met Phe Leu Val Val Ser Thr Ser Leu Cys Leu Ile Arg
 50 55 60
 Asn Val Pro Pro Phe Trp Arg Glu Met Lys Ser Phe Arg Glu Lys Val
 65 70 75 80
 Lys Glu Lys Ser Leu Ala Ala Met Arg His Ser Ser Leu Leu Asp Val
 85 90 95
 Lys Ile Ala Pro Glu Val Ala Lys Arg Tyr Leu Glu Val Gln Gly Phe
 100 105 110
 Gln Gly Lys Thr Ile Asn Arg Glu Asp Gly Ser Val Leu Ile Ala Ala
 115 120 125
 Lys Lys Gly Thr Met Asn Lys Trp Gly Tyr Ile Phe Ala His Val Ala
 130 135 140
 Leu Ile Val Ile Cys Leu Gly Gly Leu Ile Asp Ser Asn Leu Leu Leu
 145 150 155 160
 Lys Leu Gly Met Leu Thr Gly Arg Ile Phe Arg Thr Ile Arg Arg Phe
 165 170 175
 Met Pro Arg Ile Xaa Lys Pro Glu Ser Xaa Phe Gly Cys Val Gln Ser
 180 185 190

Leu Ile Gly Gln Arg Gln Tyr Phe Xaa Arg Gly Arg Val Arg Met Trp
 195 200 205

Phe Ser
 210

<210> 443
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 443
 nnnnnnnn

8

<210> 444
 <211> 241
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
 <222> (170)..(170)
 <223> Xaa= any amino acid

<220>
 <221> misc_feature
 <222> (186)..(186)
 <223> Xaa= any amino acid

<400> 444
 Met Ser Lys Ser Arg Ile Ser Pro Thr Leu Leu Ser Arg Pro Trp Phe
 1 5 10 15

Ala Phe Phe Ser Ser Met Arg Phe Ala Val Ala Leu Leu Ser Leu Leu
 20 25 30

Gly Ile Ala Ser Val Ile Gly Thr Val Leu Gln Gln Asn Gln Pro Gln
 35 40 45

Thr Asp Tyr Leu Val Lys Phe Gly Pro Phe Trp Thr Arg Ile Phe Asp
 50 55 60

Phe Leu Gly Leu Tyr Asp Val Tyr Ala Ser Ala Trp Phe Val Val Ile
 65 70 75 80

Met Met Phe Leu Val Val Ser Thr Ser Leu Cys Leu Ile Arg Asn Val
 85 90 95

Pro Pro Phe Trp Arg Glu Met Lys Ser Phe Arg Glu Lys Val Lys Glu
 100 105 110

Lys Ser Leu Ala Ala Met Arg His Ser Ser Leu Leu Asp Val Lys Ile
 115 120 125

Ala Pro Glu Val Ala Lys Arg Tyr Leu Glu Val Arg Gly Phe Gln Gly
 130 135 140

Lys Thr Val Ser Arg Glu Asp Gly Ser Val Leu Ile Ala Ala Lys Lys
 145 150 155 160

Gly Thr Met Asn Lys Trp Gly Tyr Ile Xaa Ala His Val Ala Leu Ile
 165 170 175

Val Ile Cys Leu Gly Arg Leu Ile Asn Xaa Asn Leu Leu Leu Lys Leu
 180 185 190

Gly Met Leu Ala Gly Ser Ile Phe Arg Asn Asn Arg Arg Val Met Pro
 195 200 205

Arg Ile Ser Lys Pro Glu Ser Ile Trp Gly Gly Val Gln Ser Leu Ile
 210 215 220

Lys Gly Gln Arg Gln Tyr Phe Gln Arg Gly Lys Val Arg Met Trp Phe
 225 230 235 240

Ser

<210> 445
 <211> 1056
 <212> DNA
 <213> Neisseria meningitidis

<400> 445
 atgccgtctg aaacacgcct gccgaacttt atccgcgtct tgatatattgc cctggggtttc 60
 atcttcctga acgcctgttc ggaacaaacc gcgcaaaccg ttaccctgca aggcgaaacg 120
 atgggcacga cctataccgt caaatacctt tcaaataatc gggacaaact cccctcacct 180
 gccgaaatac aaaaacgcat cgatgacgcg cttaaagaag tcaaccggca gatgtccacc 240
 tatcagcccg actccgaaat cagccggttc aaccaacaca cagccggcaa gccctccgc 300
 atttcaagcg acttcgcaca cgttactgcc gaagccgtcc gcctgaaccg cctgacacac 360
 ggcgcgctgg acgtaaccgt cggccccttg gtcaaccttt ggggattcgg ccccgacaaa 420
 tccgttaccc gtgaaccgtc gccggaacaa atcaaacagg cggcatctta tacgggcata 480
 gacaaaatca ttttgaaaca aggcaaagat tacgcttcct tgagcaaaac ccacccaag 540
 gcctatttgg atttatcttc gattgccaaa ggcttcggcg ttgataaagt tgcgggcgaa 600
 ctggaaaaat acggcattca aaattatctg gtcgaaatcg gcggcgagtt gcacggcaaa 660
 ggcaaaaacg cgcgcggcga accgtggcgc atcggtatcg agcagcccaa tatcgtccaa 720
 ggcggaata cgagattat cgtcccgtg aacaaccgtt cgcttgccac ttccggcgat 780
 taccgtattt tccacgtcga taaaaacggc aaacgcctct cccatatcat caaccggaac 840
 aacaaacgac ccatcagcca caacctcgcc tccatcagcg tggtcgcaga cagtgcgatg 900
 acggcggacg gcttgctccac aggattatct gtattgggcg aaaccgaagc cttaaagctg 960
 gcagagcgcg aaaaactcgc tgttttcctg attgtcaggg ataaaggcgg ctaccgcacc 1020
 gccatgtctt ccgaatttga aaaactgctc cgctaa 1056

<210> 446
 <211> 351
 <212> PRT
 <213> Neisseria meningitidis

<400> 446

Met	Pro	Ser	Glu	Thr	Arg	Leu	Pro	Asn	Phe	Ile	Arg	Val	Leu	Ile	Phe
1				5					10					15	
Ala	Leu	Gly	Phe	Ile	Phe	Leu	Asn	Ala	Cys	Ser	Glu	Gln	Thr	Ala	Gln
			20					25					30		
Thr	Val	Thr	Leu	Gln	Gly	Glu	Thr	Met	Gly	Thr	Thr	Tyr	Thr	Val	Lys
		35					40					45			
Tyr	Leu	Ser	Asn	Asn	Arg	Asp	Lys	Leu	Pro	Ser	Pro	Ala	Glu	Ile	Gln
	50					55					60				
Lys	Arg	Ile	Asp	Asp	Ala	Leu	Lys	Glu	Val	Asn	Arg	Gln	Met	Ser	Thr
65					70					75					80
Tyr	Gln	Pro	Asp	Ser	Glu	Ile	Ser	Arg	Phe	Asn	Gln	His	Thr	Ala	Gly
				85					90					95	
Lys	Pro	Leu	Arg	Ile	Ser	Ser	Asp	Phe	Ala	His	Val	Thr	Ala	Glu	Ala
			100					105						110	
Val	Arg	Leu	Asn	Arg	Leu	Thr	His	Gly	Ala	Leu	Asp	Val	Thr	Val	Gly
		115					120					125			
Pro	Leu	Val	Asn	Leu	Trp	Gly	Phe	Gly	Pro	Asp	Lys	Ser	Val	Thr	Arg
	130					135					140				
Glu	Pro	Ser	Pro	Glu	Gln	Ile	Lys	Gln	Ala	Ala	Ser	Tyr	Thr	Gly	Ile
145					150					155					160
Asp	Lys	Ile	Ile	Leu	Lys	Gln	Gly	Lys	Asp	Tyr	Ala	Ser	Leu	Ser	Lys
				165					170					175	
Thr	His	Pro	Lys	Ala	Tyr	Leu	Asp	Leu	Ser	Ser	Ile	Ala	Lys	Gly	Phe
			180					185						190	
Gly	Val	Asp	Lys	Val	Ala	Gly	Glu	Leu	Glu	Lys	Tyr	Gly	Ile	Gln	Asn
		195					200					205			
Tyr	Leu	Val	Glu	Ile	Gly	Gly	Glu	Leu	His	Gly	Lys	Gly	Lys	Asn	Ala
	210					215					220				
Arg	Gly	Glu	Pro	Trp	Arg	Ile	Gly	Ile	Glu	Gln	Pro	Asn	Ile	Val	Gln
225					230					235					240
Gly	Gly	Asn	Thr	Gln	Ile	Ile	Val	Pro	Leu	Asn	Asn	Arg	Ser	Leu	Ala
				245					250					255	
Thr	Ser	Gly	Asp	Tyr	Arg	Ile	Phe	His	Val	Asp	Lys	Asn	Gly	Lys	Arg
			260					265					270		
Leu	Ser	His	Ile	Ile	Asn	Pro	Asn	Asn	Lys	Arg	Pro	Ile	Ser	His	Asn
		275					280					285			
Leu	Ala	Ser	Ile	Ser	Val	Val	Ala	Asp	Ser	Ala	Met	Thr	Ala	Asp	Gly

290

295

300

Leu Ser Thr Gly Leu Phe Val Leu Gly Glu Thr Glu Ala Leu Lys Leu
305 310 315 320

Ala Glu Arg Glu Lys Leu Ala Val Phe Leu Ile Val Arg Asp Lys Gly
325 330 335

Gly Tyr Arg Thr Ala Met Ser Ser Glu Phe Glu Lys Leu Leu Arg
340 345 350

<210> 447
<211> 1056
<212> DNA
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (166)..(166)
<223> N= Unknown

<220>
<221> misc_feature
<222> (174)..(174)
<223> N= Unknown

<220>
<221> misc_feature
<222> (195)..(195)
<223> N= Unknown

<220>
<221> misc_feature
<222> (586)..(586)
<223> N= Unknown

<220>
<221> misc_feature
<222> (588)..(588)
<223> N= Unknown

<220>
<221> misc_feature
<222> (645)..(645)
<223> N= Unknown

<220>
<221> misc_feature
<222> (662)..(662)
<223> N= Unknown

<220>
<221> misc_feature
<222> (763)..(763)
<223> N= Unknown

<220>
<221> misc_feature
<222> (883)..(883)
<223> N= Unknown

<220>
<221> misc_feature
<222> (915)..(915)
<223> N= Unknown

<400> 447
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atcttcctga acgcctgttc ggaacaaacc gcgcaaaccg ttaccctgca aggtgaaacg 120
atgggcacga cctataccgt caaatacctt tcaaataatc gggacnaact ccntcacct 180
gccgaaatac aaaancgcat cgatgacgcg cttaaagaag tcaaccggca gatgtccacc 240
tatcagcccg actccgaaat cagccggttc aaccaacaca cagccggcaa gcccctccgc 300
atttcaagcg acttcgcaca cgttactgcc gaagccgtcc acctgaaccg cctgacacac 360
ggcgcgctgg acgtaaccgt cggccccctg gtcaaccttt ggggattcgg ccccgacaaa 420
tccgttacct gtgaaccgtc gccggaacaa atcaaacaag cagcatctta tacgggcata 480
gacaaaatca ttttgaaaca aggcaaagat tacgcttcct tgagcaaaac ccacccaag 540
gcctatttgg atttatcttc gattgccaaa ggcttcggcg ttgatnangt tgcgggcgaa 600
ctggaaaaat acggcattca aaattatctg gtcgaaatcg gcgngagtt gcacggcaaa 660
gncaaaaacg cgcgcggcga accttggcgc atcggcatcg aacagcccaa catcgtccaa 720
ggcggcaata cgcagattat cgtcccgtg aacaaccgtt cgnttgccac ttccggcgat 780
taccgtatth tccacgtcga taaaagcggc aaacgcctct cccatatcat taatccgaac 840
aacaacgac ccatcagcca caacctcgcc tccatcagcg tgntcgcaga cagtgcgatg 900
acggcgagcg gcttntccac aggattattc gtattgggcg aaaccgaagc cttaaagctg 960
gcagagcgcg aaaaactcgc tgttttcctg attgtcaggg ataaaggcgg ctaccgcacc 1020
gccatgtctt ccgaatttga aaaactgctc cgctaa 1056

<210> 448
<211> 351
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (56)..(56)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (65)..(65)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (196)..(196)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (221)..(221)
<223> Xaa= any amino acid

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<221> misc_feature
<222> (255)..(255)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (295)..(295)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (305)..(305)
<223> Xaa= any amino acid

<400> 448

Met	Pro	Ser	Glu	Thr	Arg	Leu	Pro	Asn	Phe	Ile	Arg	Thr	Leu	Ile	Phe
1				5					10					15	
Ala	Leu	Ser	Phe	Ile	Phe	Leu	Asn	Ala	Cys	Ser	Glu	Gln	Thr	Ala	Gln
			20					25					30		
Thr	Val	Thr	Leu	Gln	Gly	Glu	Thr	Met	Gly	Thr	Thr	Tyr	Thr	Val	Lys
		35					40					45			
Tyr	Leu	Ser	Asn	Asn	Arg	Asp	Xaa	Leu	Pro	Ser	Pro	Ala	Glu	Ile	Gln
	50					55					60				
Xaa	Arg	Ile	Asp	Asp	Ala	Leu	Lys	Glu	Val	Asn	Arg	Gln	Met	Ser	Thr
65					70					75					80
Tyr	Gln	Pro	Asp	Ser	Glu	Ile	Ser	Arg	Phe	Asn	Gln	His	Thr	Ala	Gly
			85						90					95	
Lys	Pro	Leu	Arg	Ile	Ser	Ser	Asp	Phe	Ala	His	Val	Thr	Ala	Glu	Ala
			100					105					110		
Val	His	Leu	Asn	Arg	Leu	Thr	His	Gly	Ala	Leu	Asp	Val	Thr	Val	Gly
		115					120					125			
Pro	Leu	Val	Asn	Leu	Trp	Gly	Phe	Gly	Pro	Asp	Lys	Ser	Val	Thr	Arg
	130					135					140				
Glu	Pro	Ser	Pro	Glu	Gln	Ile	Lys	Gln	Ala	Ala	Ser	Tyr	Thr	Gly	Ile
145					150					155					160
Asp	Lys	Ile	Ile	Leu	Lys	Gln	Gly	Lys	Asp	Tyr	Ala	Ser	Leu	Ser	Lys
				165					170					175	
Thr	His	Pro	Lys	Ala	Tyr	Leu	Asp	Leu	Ser	Ser	Ile	Ala	Lys	Gly	Phe
			180					185					190		
Gly	Val	Asp	Xaa	Val	Ala	Gly	Glu	Leu	Glu	Lys	Tyr	Gly	Ile	Gln	Asn
		195					200						205		
Tyr	Leu	Val	Glu	Ile	Gly	Gly	Glu	Leu	His	Gly	Lys	Xaa	Lys	Asn	Ala
	210					215					220				

Arg Gly Glu Pro Trp Arg Ile Gly Ile Glu Gln Pro Asn Ile Val Gln
 225 230 235 240
 Gly Gly Asn Thr Gln Ile Ile Val Pro Leu Asn Asn Arg Ser Xaa Ala
 245 250 255
 Thr Ser Gly Asp Tyr Arg Ile Phe His Val Asp Lys Ser Gly Lys Arg
 260 265 270
 Leu Ser His Ile Ile Asn Pro Asn Asn Lys Arg Pro Ile Ser His Asn
 275 280 285
 Leu Ala Ser Ile Ser Val Xaa Ala Asp Ser Ala Met Thr Ala Asp Gly
 290 295 300
 Xaa Ser Thr Gly Leu Phe Val Leu Gly Glu Thr Glu Ala Leu Lys Leu
 305 310 315 320
 Ala Glu Arg Glu Lys Leu Ala Val Phe Leu Ile Val Arg Asp Lys Gly
 325 330 335
 Gly Tyr Arg Thr Ala Met Ser Ser Glu Phe Glu Lys Leu Leu Arg
 340 345 350

<210> 449
 <211> 1056
 <212> DNA
 <213> *Neisseria gonorrhoeae*

<400> 449
 atgccgtctg aaacacgcct gccgaacctt atccgcgcct tgatatttgc cctgggtttc 60
 atcttcctga acgcctgttc ggaacaaacc gcgcaaaccg ttaccctgca aggcgaaacg 120
 atgggtacga cctataccgt caaatacctt tcaaataatc gggacaaact cccctcccct 180
 gccaaaatac aaaagcgcct tgatgatgcg cttaaagaag tcaaccggca gatgtccacc 240
 taccagaccg attccgaaat cagccgggtc aaccaacaca cagccggcaa gcccctccgc 300
 atttcaagcg atttcgcaca cgttaccgcc gaagccgtcc gcctgaaccg cctgactcac 360
 ggcgactgg acgtaaccgt cggccctttg gtcaaccttt ggggggttcg ccccgacaaa 420
 tccgttaccg gtgaaccgtc gccggaacaa atcaaacagg cggcatctta tacgggcata 480
 gacaaaatca ttttgcaaca aggcaaagat tacgcttcct tgagcaaaaac ccaccccaaa 540
 gcctatttgg atttatcttc gattgccaaa ggcttcggcg ttgataaagt tgcgggcgaa 600
 ctggaaaaat acggcattca aaattatctg gtcgaaatcg gcggcgagtt gcacggcaaa 660
 ggcaaaaatg cgcacggcga accgtggcgc atcggtatag agcaacccaa tatcatccaa 720
 ggcggaata cgcagattat cgtcccgtcg aacaaccgtt cgcttgccac ttccggcgat 780
 taccgtattt tccacgtcga taaaaacggc aaacgccttt cccacatcat caatcccaac 840
 aacaaacgac ccatcagcca caacctcgcc tccatcagcg tgggtctcaga cagtgaatg 900
 acggcggacg gtttatccac aggattattt gttttaggcg aaaccgaagc cttaaggctg 960
 gcagaacaag aaaaactcgc tgttttccta attgtccggg ataaggacgg ctaccgcacc 1020
 gccatgtctt ccgaatttgc caagctgctc cgctaa 1056

<210> 450
 <211> 351
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 450
 Met Pro Ser Glu Thr Arg Leu Pro Asn Leu Ile Arg Ala Leu Ile Phe

1	5	10	15
Ala Leu Gly Phe Ile Phe Leu Asn Ala Cys Ser Glu Gln Thr Ala Gln	20	25	30
Thr Val Thr Leu Gln Gly Glu Thr Met Gly Thr Thr Tyr Thr Val Lys	35	40	45
Tyr Leu Ser Asn Asn Arg Asp Lys Leu Pro Ser Pro Ala Lys Ile Gln	50	55	60
Lys Arg Ile Asp Asp Ala Leu Lys Glu Val Asn Arg Gln Met Ser Thr	65	70	75
Tyr Gln Thr Asp Ser Glu Ile Ser Arg Phe Asn Gln His Thr Ala Gly	85	90	95
Lys Pro Leu Arg Ile Ser Ser Asp Phe Ala His Val Thr Ala Glu Ala	100	105	110
Val Arg Leu Asn Arg Leu Thr His Gly Ala Leu Asp Val Thr Val Gly	115	120	125
Pro Leu Val Asn Leu Trp Gly Phe Gly Pro Asp Lys Ser Val Thr Arg	130	135	140
Glu Pro Ser Pro Glu Gln Ile Lys Gln Ala Ala Ser Tyr Thr Gly Ile	145	150	155
Asp Lys Ile Ile Leu Gln Gln Gly Lys Asp Tyr Ala Ser Leu Ser Lys	165	170	175
Thr His Pro Lys Ala Tyr Leu Asp Leu Ser Ser Ile Ala Lys Gly Phe	180	185	190
Gly Val Asp Lys Val Ala Gly Glu Leu Glu Lys Tyr Gly Ile Gln Asn	195	200	205
Tyr Leu Val Glu Ile Gly Gly Glu Leu His Gly Lys Gly Lys Asn Ala	210	215	220
His Gly Glu Pro Trp Arg Ile Gly Ile Glu Gln Pro Asn Ile Ile Gln	225	230	235
Gly Gly Asn Thr Gln Ile Ile Val Pro Leu Asn Asn Arg Ser Leu Ala	245	250	255
Thr Ser Gly Asp Tyr Arg Ile Phe His Val Asp Lys Asn Gly Lys Arg	260	265	270
Leu Ser His Ile Ile Asn Pro Asn Asn Lys Arg Pro Ile Ser His Asn	275	280	285
Leu Ala Ser Ile Ser Val Val Ser Asp Ser Ala Met Thr Ala Asp Gly	290	295	300

Leu Ser Thr Gly Leu Phe Val Leu Gly Glu Thr Glu Ala Leu Arg Leu
305 310 315 320

Ala Glu Gln Glu Lys Leu Ala Val Phe Leu Ile Val Arg Asp Lys Asp
325 330 335

Gly Tyr Arg Thr Ala Met Ser Ser Glu Phe Ala Lys Leu Leu Arg
340 345 350

<210> 451
<211> 789
<212> DNA
<213> Neisseria meningitidis

<400> 451
ccgtgccgcc gacagggcga cgacgtgtat gggcgccacg cgtcccgtca aaaattgtgg 60
ctgcgcttca tcggcggccg gtcgcatcaa aatatacggg gcggcgccgc tgcggacggg 120
tggcgcaaag gcgtgcaaat cggcggcgag gtgtttgtac ggcaaaatga aggcagccka 180
ytggcaatcg gcgtgatggg cggcagggcc ggccagcacg cwtcagtcaa cggcaaaggc 240
ggtgcggcag gcagtgattt gtatggttat ggcgggggtg tttatgctgc gtggcatcag 300
ttgcgcgata aacaaacggg tgcgtatttg gacggctggt tgcaatacca acgtttcaaa 360
caccgcatca atgatgaaaa ccgtgcggaa cgctacaaaa ccaaagggtg gacggcttct 420
gtcgaaggcg gctacaacgc gcttgtggcg gaaggcattg tcggaaaagg caataatgtg 480
cggttttacc tacaaccgca ggcgagttt acctacttgg gcgtaaacgg cggctttacc 540
gacagcgagg ggacggcggt cggactgctc ggcagcggtc agtggcaaag ccgcgccggc 600
attcgggcaa aaaccggtt tgctttgcgt aacgggtgtc atcttcagcc ttttgccgct 660
tttaaatgtt tgacacaggtc aaaatctttc ggcgtggaaa tggacggcga aaaacagacg 720
ctggcaggca ggacggcact cgaagggcgg ttcggtattg aagccggtt gaaaggccat 780
atgtccgca 789

<210> 452
<211> 263
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (60)..(60)
<223> Xaa= any amino acid

<400> 452
Pro Cys Arg Arg Gln Gly Asp Asp Val Tyr Ala Ala His Ala Ser Arg
1 5 10 15

Gln Lys Leu Trp Leu Arg Phe Ile Gly Gly Arg Ser His Gln Asn Ile
20 25 30

Arg Gly Gly Ala Ala Ala Asp Gly Trp Arg Lys Gly Val Gln Ile Gly
35 40 45

Gly Glu Val Phe Val Arg Gln Ash Glu Gly Ser Xaa Leu Ala Ile Gly
50 55 60

Val Met Gly Gly Arg Ala Gly Gln His Ala Ser Val Asn Gly Lys Gly
65 70 75 80

Gly Ala Ala Gly Ser Asp Leu Tyr Gly Tyr Gly Gly Gly Val Tyr Ala
 85 90 95
 Ala Trp His Gln Leu Arg Asp Lys Gln Thr Gly Ala Tyr Leu Asp Gly
 100 105 110
 Trp Leu Gln Tyr Gln Arg Phe Lys His Arg Ile Asn Asp Glu Asn Arg
 115 120 125
 Ala Glu Arg Tyr Lys Thr Lys Gly Trp Thr Ala Ser Val Glu Gly Gly
 130 135 140
 Tyr Asn Ala Leu Val Ala Glu Gly Ile Val Gly Lys Gly Asn Asn Val
 145 150 155 160
 Arg Phe Tyr Leu Gln Pro Gln Ala Gln Phe Thr Tyr Leu Gly Val Asn
 165 170 175
 Gly Gly Phe Thr Asp Ser Glu Gly Thr Ala Val Gly Leu Leu Gly Ser
 180 185 190
 Gly Gln Trp Gln Ser Arg Ala Gly Ile Arg Ala Lys Thr Arg Phe Ala
 195 200 205
 Leu Arg Asn Gly Val Asn Leu Gln Pro Phe Ala Ala Phe Asn Val Leu
 210 215 220
 His Arg Ser Lys Ser Phe Gly Val Glu Met Asp Gly Glu Lys Gln Thr
 225 230 235 240
 Leu Ala Gly Arg Thr Ala Leu Glu Gly Arg Phe Gly Ile Glu Ala Gly
 245 250 255
 Trp Lys Gly His Met Ser Ala
 260

<210> 453
 <211> 1860
 <212> DNA
 <213> *Neisseria meningitidis*

<400> 453
 atgttcagag ctcagcttgg ttcaaatact cgttctacca aaatcggcga cgatgccgat 60
 ttttcatttt cagacaagcc gaaaccggc acttcccatt atttttccag cggtaaaacc 120
 gatcaaaaatt catccgaata tgggtatgac gaaatcaata tccaaggtaa aaactacaat 180
 agcggcatac tcgccgtcga taatatgcc gttgttaaga aatatattac agatacttac 240
 ggggataatt taaaggatgc ggttaagaag caattacagg atttatacaa aacaagaccc 300
 gaagcttggg aagaaaataa aaaacggact gaggaggcgt atatagaaca gcttggacca 360
 aaatttagta tactcaaaca gaaaaacccc gattttaatta ataaattggg agaagattcc 420
 gtactcactc ctcatagtaa tacatcacag actagtctca acaacatctt caataaaaaa 480
 ttacacgtca aaatcgaaaa caaatccac gtcgccggac aggtgttgga actgaccaag 540
 atgacgctga aagattccct ttgggaaccg cgccgccatt ccgacatcca tatgctggaa 600
 acttccgata atgcccgcat ccgcctgaac acgaaagatg aaaaactgac cgtccataaa 660
 gcgtatcagg gcggtgcgga tttcctgttc ggctacgacg tcggggagtc ggacaaaccc 720
 gccctgacct ttgaagaaaa agtcagcgga caatccggcg tggttttgga acgccggccg 780
 gaaaatctga aaacgctcga cgggcgcaaa ctgattgcgg cggaaaaggc agactcta 840

tcgtttgcgt	ttaaacaaaa	ttaccggcag	ggactgtacg	aattattgct	caagcaatgc	900
gaaggcggat	tttgcttggg	cgtgcagcgt	ttggctatcc	ccgaggcgga	agcggtttta	960
tatgcccac	aggcttatgc	ggcaaatact	ttgttcgggc	tgcgtgccgc	cgacaggggc	1020
gacgacgtgt	atgccgccga	tccgtcccgt	caaaaattgt	ggctgcgctt	catcggcggc	1080
cggtcgcata	aaaatatacg	gggcggcgcg	gctgcggacg	ggcggcgcaa	aggcgtgcaa	1140
atcggcggcg	aggtgtttgt	acggcaaaat	gaaggcagcc	ggctggcaat	cggcgtgatg	1200
ggcggcaggg	ctggccagca	cgcatacagtc	aacggcaaaag	gcggtgcggc	aggcagttat	1260
ttgcatgggt	atggcggggg	tgtttatgct	gcgtggcatc	agttgcgcga	taaacaaacg	1320
ggtgcgtatt	tggacggctg	gttgcaatac	caacgtttca	aacaccgcat	caatgatgaa	1380
aaccgtgcgg	aacgctacaa	aaccaaagggt	tggacggctt	ctgtcgaagg	cggctacaac	1440
gcgcttgtgg	cgggaaggcgt	tgtcggaaaa	ggcaataatg	tgcggtttta	cctgcaaccg	1500
caggcgagcgt	ttacctactt	gggcgtatac	ggcggcttta	ccgacagcga	ggggacggcg	1560
gtcggactgc	tccgcagcgg	tcagtggaac	agccgcggcg	gcattcgggc	aaaaaccggt	1620
tttgctttgc	gtaacgggtgt	caatcttcag	ccttttgccg	cttttaaatgt	tttgcacagg	1680
tcaaaatctt	tcggcggtga	aatggacggc	gaaaaacaga	cgcgtggcagg	caggacggcg	1740
ctcgaagggc	ggttcggcat	tgaagccggt	tggaaaggcc	atatgtccgc	acgcatacgga	1800
tacggcaaaa	ggacggacgg	cgacaaagaa	gccgcattgt	cgctcaaata	gctgttttga	1860

<210> 454
 <211> 619
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 454
 Met Phe Arg Ala Gln Leu Gly Ser Asn Thr Arg Ser Thr Lys Ile Gly
 1 5 10 15
 Asp Asp Ala Asp Phe Ser Phe Ser Asp Lys Pro Lys Pro Gly Thr Ser
 20 25 30
 His Tyr Phe Ser Ser Gly Lys Thr Asp Gln Asn Ser Ser Glu Tyr Gly
 35 40 45
 Tyr Asp Glu Ile Asn Ile Gln Gly Lys Asn Tyr Asn Ser Gly Ile Leu
 50 55 60
 Ala Val Asp Asn Met Pro Val Val Lys Lys Tyr Ile Thr Asp Thr Tyr
 65 70 75 80
 Gly Asp Asn Leu Lys Asp Ala Val Lys Lys Gln Leu Gln Asp Leu Tyr
 85 90 95
 Lys Thr Arg Pro Glu Ala Trp Glu Glu Asn Lys Lys Arg Thr Glu Glu
 100 105 110
 Ala Tyr Ile Glu Gln Leu Gly Pro Lys Phe Ser Ile Leu Lys Gln Lys
 115 120 125
 Asn Pro Asp Leu Ile Asn Lys Leu Val Glu Asp Ser Val Leu Thr Pro
 130 135 140
 His Ser Asn Thr Ser Gln Thr Ser Leu Asn Asn Ile Phe Asn Lys Lys
 145 150 155 160
 Leu His Val Lys Ile Glu Asn Lys Ser His Val Ala Gly Gln Val Leu
 165 170 175

Glu	Leu	Thr	Lys	Met	Thr	Leu	Lys	Asp	Ser	Leu	Trp	Glu	Pro	Arg	Arg	180	185	190	
His	Ser	Asp	Ile	His	Met	Leu	Glu	Thr	Ser	Asp	Asn	Ala	Arg	Ile	Arg	195	200	205	
Leu	Asn	Thr	Lys	Asp	Glu	Lys	Leu	Thr	Val	His	Lys	Ala	Tyr	Gln	Gly	210	215	220	
Gly	Ala	Asp	Phe	Leu	Phe	Gly	Tyr	Asp	Val	Arg	Glu	Ser	Asp	Lys	Pro	225	230	235	240
Ala	Leu	Thr	Phe	Glu	Glu	Lys	Val	Ser	Gly	Gln	Ser	Gly	Val	Val	Leu	245	250	255	
Glu	Arg	Arg	Pro	Glu	Asn	Leu	Lys	Thr	Leu	Asp	Gly	Arg	Lys	Leu	Ile	260	265	270	
Ala	Ala	Glu	Lys	Ala	Asp	Ser	Asn	Ser	Phe	Ala	Phe	Lys	Gln	Asn	Tyr	275	280	285	
Arg	Gln	Gly	Leu	Tyr	Glu	Leu	Leu	Leu	Lys	Gln	Cys	Glu	Gly	Gly	Phe	290	295	300	
Cys	Leu	Gly	Val	Gln	Arg	Leu	Ala	Ile	Pro	Glu	Ala	Glu	Ala	Val	Leu	305	310	315	320
Tyr	Ala	Gln	Gln	Ala	Tyr	Ala	Ala	Asn	Thr	Leu	Phe	Gly	Leu	Arg	Ala	325	330	335	
Ala	Asp	Arg	Gly	Asp	Asp	Val	Tyr	Ala	Ala	Asp	Pro	Ser	Arg	Gln	Lys	340	345	350	
Leu	Trp	Leu	Arg	Phe	Ile	Gly	Gly	Arg	Ser	His	Gln	Asn	Ile	Arg	Gly	355	360	365	
Gly	Ala	Ala	Ala	Asp	Gly	Arg	Arg	Lys	Gly	Val	Gln	Ile	Gly	Gly	Glu	370	375	380	
Val	Phe	Val	Arg	Gln	Asn	Glu	Gly	Ser	Arg	Leu	Ala	Ile	Gly	Val	Met	385	390	395	400
Gly	Gly	Arg	Ala	Gly	Gln	His	Ala	Ser	Val	Asn	Gly	Lys	Gly	Gly	Ala	405	410	415	
Ala	Gly	Ser	Tyr	Leu	His	Gly	Tyr	Gly	Gly	Gly	Val	Tyr	Ala	Ala	Trp	420	425	430	
His	Gln	Leu	Arg	Asp	Lys	Gln	Thr	Gly	Ala	Tyr	Leu	Asp	Gly	Trp	Leu	435	440	445	
Gln	Tyr	Gln	Arg	Phe	Lys	His	Arg	Ile	Asn	Asp	Glu	Asn	Arg	Ala	Glu	450	455	460	
Arg	Tyr	Lys	Thr	Lys	Gly	Trp	Thr	Ala	Ser	Val	Glu	Gly	Gly	Tyr	Asn	465	470	475	480

Ala Leu Val Ala Glu Gly Val Val Gly Lys Gly Asn Asn Val Arg Phe
485 490 495

Tyr Leu Gln Pro Gln Ala Gln Phe Thr Tyr Leu Gly Val Asn Gly Gly
500 505 510

Phe Thr Asp Ser Glu Gly Thr Ala Val Gly Leu Leu Gly Ser Gly Gln
515 520 525

Trp Gln Ser Arg Ala Gly Ile Arg Ala Lys Thr Arg Phe Ala Leu Arg
530 535 540

Asn Gly Val Asn Leu Gln Pro Phe Ala Ala Phe Asn Val Leu His Arg
545 550 555 560

Ser Lys Ser Phe Gly Val Glu Met Asp Gly Glu Lys Gln Thr Leu Ala
565 570 575

Gly Arg Thr Ala Leu Glu Gly Arg Phe Gly Ile Glu Ala Gly Trp Lys
580 585 590

Gly His Met Ser Ala Arg Ile Gly Tyr Gly Lys Arg Thr Asp Gly Asp
595 600 605

Lys Glu Ala Ala Leu Ser Leu Lys Trp Leu Phe
610 615

<210> 455
<211> 8
<212> DNA
<213> Neisseria gonorrhoeae

<220>
<221> misc_feature
<222> (1)..(8)
<223> N= Unknown

<400> 455
nnnnnnnnn

8

<210> 456
<211> 627
<212> PRT
<213> Neisseria gonorrhoeae

<400> 456
Lys Lys Leu Arg Asp Arg Asn Ser Glu Tyr Trp Lys Glu Glu Thr Tyr
1 5 10 15

His Ile Lys Ser Asn Gly Arg Thr Tyr Pro Asn Ile Pro Ala Leu Phe
20 25 30

Pro Lys His Pro Phe Asp Pro Phe Glu Asn Ile Asn Asn Ser Lys Lys
35 40 45

Ile Ser Phe Tyr Asp Lys Glu Tyr Thr Glu Asp Tyr Leu Val Gly Phe

50					55					60						
Ala	Arg	Gly	Phe	Gly	Val	Glu	Lys	Arg	Asn	Gly	Glu	Glu	Glu	Lys	Pro	
65					70					75					80	
Leu	Arg	Gln	Tyr	Phe	Lys	Asp	Cys	Val	Asn	Thr	Glu	Asn	Ser	Asn	Asn	
				85					90					95		
Asp	Asn	Cys	Lys	Ile	Ser	Ser	Phe	Gly	Asn	Tyr	Gly	Pro	Ile	Leu	Ile	
			100					105					110			
Lys	Ser	Asp	Ile	Phe	Ala	Leu	Ala	Ser	Gln	Ile	Lys	Asn	Ser	His	Ile	
		115					120					125				
Asn	Ser	Glu	Ile	Leu	Ser	Val	Gly	Asn	Tyr	Ile	Glu	Trp	Leu	Arg	Pro	
	130					135					140					
Thr	Leu	Asn	Lys	Leu	Thr	Gly	Trp	Gln	Glu	His	Leu	Tyr	Ala	Gly	Leu	
145					150					155					160	
Asp	Pro	Phe	His	Tyr	Ile	Glu	Val	Thr	Asp	Asn	Ser	His	Val	Ile	Gly	
			165						170					175		
Gln	Thr	Ile	Asp	Leu	Gly	Ala	Leu	Glu	Leu	Thr	Asn	Ser	Leu	Trp	Lys	
		180						185					190			
Pro	Arg	Trp	Asn	Ser	Asn	Ile	Asp	Tyr	Leu	Ile	Thr	Lys	Asn	Ala	Glu	
		195					200					205				
Ile	Arg	Phe	Asn	Thr	Lys	Asn	Glu	Ser	Leu	Leu	Val	Lys	Glu	Asp	Tyr	
	210					215					220					
Ala	Gly	Gly	Ala	Arg	Phe	Arg	Phe	Ala	Tyr	Asp	Leu	Lys	Asp	Lys	Val	
225					230					235					240	
Pro	Glu	Ile	Pro	Val	Leu	Thr	Phe	Glu	Lys	Asn	Ile	Thr	Gly	Thr	Ser	
				245					250					255		
Asp	Ile	Ile	Phe	Glu	Gly	Lys	Ala	Leu	Asp	Asn	Leu	Lys	His	Leu	Asp	
			260					265					270			
Gly	His	Gln	Ile	Val	Lys	Val	Asn	Asp	Thr	Ala	Asp	Lys	Asp	Ala	Phe	
	275						280					285				
Arg	Leu	Ser	Ser	Lys	Tyr	Arg	Lys	Gly	Ile	Tyr	Thr	Leu	Ser	Leu	Gln	
	290					295					300					
Gln	Arg	Pro	Glu	Gly	Phe	Phe	Thr	Lys	Val	Gln	Glu	Arg	Asp	Asp	Ile	
305					310					315					320	
Ala	Ile	Tyr	Ala	Gln	Gln	Ala	Gln	Ala	Ala	Asn	Thr	Leu	Phe	Ala	Leu	
				325					330					335		
Arg	Leu	Asn	Asp	Lys	Asn	Ser	Asp	Ile	Phe	Asp	Arg	Thr	Leu	Pro	Arg	
		340						345					350			

Lys Gly Leu Trp Leu Arg Val Ile Asp Gly His Ser Asn Gln Trp Val
355 360 365

Gln Gly Lys Thr Ala Pro Val Glu Gly Tyr Arg Lys Gly Val Gln Leu
370 375 380

Gly Gly Glu Val Phe Thr Trp Gln Asn Glu Ser Asn Gln Leu Ser Ile
385 390 395 400

Gly Leu Met Gly Gly Gln Ala Glu Gln Arg Ser Thr Phe Arg Asn Pro
405 410 415

Asp Thr Asp Asn Leu Thr Thr Gly Asn Val Lys Gly Phe Gly Ala Gly
420 425 430

Val Tyr Ala Thr Trp His Gln Leu Gln Asp Lys Gln Thr Gly Ala Tyr
435 440 445

Val Asp Ser Trp Met Gln Tyr Gln Arg Phe Arg His Arg Ile Asn Thr
450 455 460

Glu Tyr Ala Thr Glu Arg Phe Thr Ser Lys Gly Ile Thr Ala Ser Ile
465 470 475 480

Glu Ala Gly Tyr Asn Ala Leu Leu Ala Glu His Phe Thr Lys Lys Gly
485 490 495

Asn Ser Leu Arg Val Tyr Leu Gln Pro Gln Ala Gln Leu Thr Tyr Leu
500 505 510

Gly Val Asn Gly Lys Phe Ser Asp Ser Glu Asn Ala Gln Val Asn Leu
515 520 525

Leu Gly Ser Arg Gln Leu Gln Ser Arg Val Gly Val Gln Ala Lys Ala
530 535 540

Gln Phe Ala Phe Thr Asn Gly Val Thr Phe Gln Pro Phe Val Ala Val
545 550 555 560

Asn Ser Ile Tyr Gln Gln Lys Pro Phe Gly Val Glu Ile Asp Gly Asp
565 570 575

Arg Arg Val Ile Asn Asn Lys Thr Val Ile Glu Thr Gln Leu Gly Val
580 585 590

Ala Ala Lys Ile Lys Ser His Leu Thr Leu Gln Ala Ser Phe Asn Arg
595 600 605

Gln Thr Ser Lys His His His Ala Lys Gln Gly Ala Leu Asn Leu Gln
610 615 620

Trp Thr Phe
625

<210> 457

<211> 380

<212> DNA
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (379)..(379)
<223> N= Unknown

<400> 457
gcggaatatg ttcagttctc tatagatttg ttcagtgtgg gtaaatacggg gggcgggtata 60
cctaaggcta agcctgtgtt tgatgcgaaa ccgagatggg aggttgatag gaagcttaat 120
aaattgacaa ctcgtgagca ggtggagaaa aatgttcagg aaacgagaag aaggagtcag 180
agtagtcagt ttaaagccca tgcgcaacga gaatgggaaa ataaaacagg gttagatttt 240
aatcatttta taggtggtga tatcaataaa aaaggcacag taacaggagg gcatagtcta 300
acccgtggtg atgtacgggt gatacaacaa acctcggcac ctgataaaca tggggtttat 360
caagcgacag tggaaattna 380

<210> 458
<211> 127
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (119)..(119)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (127)..(127)
<223> Xaa= any amino acid

<400> 458
Ala Glu Tyr Val Gln Phe Ser Ile Asp Leu Phe Ser Val Gly Lys Ser
1 5 10 15
Gly Gly Gly Ile Pro Lys Ala Lys Pro Val Phe Asp Ala Lys Pro Arg
20 25 30
Trp Glu Val Asp Arg Lys Leu Asn Lys Leu Thr Thr Arg Glu Gln Val
35 40 45
Glu Lys Asn Val Gln Glu Thr Arg Arg Arg Ser Gln Ser Ser Gln Phe
50 55 60
Lys Ala His Ala Gln Arg Glu Trp Glu Asn Lys Thr Gly Leu Asp Phe
65 70 75 80
Asn His Phe Ile Gly Gly Asp Ile Asn Lys Lys Gly Thr Val Thr Gly
85 90 95
Gly His Ser Leu Thr Arg Gly Asp Val Arg Val Ile Gln Gln Thr Ser
100 105 110
Ala Pro Asp Lys His Gly Xaa Leu Ser Ser Asp Ser Gly Asn Xaa
115 120 125

<210> 459
<211> 683
<212> DNA
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (12)..(12)
<223> N= Unknown

<220>
<221> misc_feature
<222> (34)..(34)
<223> N= Unknown

<400> 459
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caggttctcg accgtcagca tttcgaaccc gacgggaaat accacctatt cggcagcagg 120
ggggaacttg ccgagcgcca gtctcatatc ggattgggaa aaatacaaag ccatcagttg 180
ggcaacctga tgattcaaca ggcggccatt aaaggaaata tcggctacat tgtccgcttt 240
tccgatcacg ggcacgaagt ccattccccc ttcgacaacc atgcctcaca ttccgattct 300
gatgaagccg gtagtcccgt tgacggattt agcctttacc gcatccattg ggacggatac 360
gaacaccatc ccgccgacgg ctatgacggg ccacagggcg gcggctatcc cgctcccaaa 420
ggcgcgaggg atatatacag ttacgacata aaaggcggtt cccaaaatat ccgcctcaac 480
ctgaccgaca accgcagcac cggacaacgg cttgccgacc gtttccacaa tgccggtagt 540
atgctgacgc aaggagtagg cgacggattc aaacgcgcca cccgatacag ccccgagctg 600
gacagatcgg gcaatgccgc cgaagccttc aacggcactg cagatatcgt taaaaacatc 660
atcggcgctg caggagaaat tgt 683

<210> 460
<211> 227
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (12)..(12)
<223> Xaa= any amino acid

<400> 460
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1 5 10 15
Ser Phe Ile Arg Gln Val Leu Asp Arg Gln His Phe Glu Pro Asp Gly
20 25 30
Lys Tyr His Leu Phe Gly Ser Arg Gly Glu Leu Ala Glu Arg Gln Ser
35 40 45
His Ile Gly Leu Gly Lys Ile Gln Ser His Gln Leu Gly Asn Leu Met
50 55 60
Ile Gln Gln Ala Ala Ile Lys Gly Asn Ile Gly Tyr Ile Val Arg Phe
65 70 75 80
Ser Asp His Gly His Glu Val His Ser Pro Phe Asp Asn His Ala Ser

8

<400> 462

Arg Arg Leu Lys His Cys Cys His Ala Arg Leu Gly Ser Ala Phe His
1 5 10 15
Arg Lys Gln Asp Gly Ala His Gln Arg Phe Gly Arg Tyr Gly Ala Thr
20 25 30
Gln Arg Leu Cys Arg Ser Ser His Pro Arg Leu Gly Ser Pro Lys Pro
35 40 45
Gln Cys Arg Thr Arg His Arg Ser Arg Gln Gln Tyr Leu Tyr Gly Ser
50 55 60
His Pro His Gln Arg Asp Trp Ser Cys Pro Gly Lys Ile Gln Leu Gly
65 70 75 80
Arg His His Gly Thr Ser Cys Arg Ala Val Ala Asp Xaa Arg Asp Arg
85 90 95
Ile Cys Glu Arg Glu Ile Arg Arg Gln Arg Gln Xaa Cys Arg Cys Arg
100 105 110
Leu Gly Lys Ile Pro Ser Leu Ser Ile Pro Lys Tyr Pro Leu Lys Leu
115 120 125
Glu Gln Arg Tyr Gly Lys Glu Asn Ile Thr Ser Ser Thr Val Pro Pro
130 135 140
Ser Asn Gly Lys Asn Val Lys Leu Ala Asp Gln Arg His Pro Lys Thr
145 150 155 160
Gly Val Pro Phe Asp Gly Lys Gly Phe Pro Asn Phe Glu Lys His Val
165 170 175
Lys Tyr Asp Thr Lys Leu Asp Ile Gln Glu Leu Ser Gly Gly Gly Ile
180 185 190
Pro Lys Ala Lys Pro Val Phe Asp Ala Lys Pro Arg Trp Glu Val Asp
195 200 205
Arg Lys Leu Asn Lys Leu Thr Thr Arg Glu Gln Val Glu Lys Asn Val
210 215 220
Gln Glu Thr Arg Arg Arg Ser Gln Ser Ser Gln Phe Lys Ala His Ala
225 230 235 240
Gln Arg Glu Trp Glu Asn Lys Lys Thr Gly Leu Asp Phe Asn His Phe Ile
245 250 255
Gly Gly Asp Ile Asn Lys Lys Gly Ala Val Thr Gly Gly His Ser Leu
260 265 270
Thr Arg Gly Asp Val Arg Val Ile Gln Gln Thr Ser Ala Pro Asp Lys
275 280 285
His Gly Val Leu Ser Ser Asp Ser Gly Asn

<210> 463
 <211> 1887
 <212> DNA
 <213> *Neisseria gonorrhoeae*

<220>
 <221> misc_feature
 <222> (175)..(175)
 <223> N= Unknown

<400> 463
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 catttcgaac ccgacgggaa ataccaccta ttcggcagca ggggggagct tgccnagcgc 180
 aacggccata tcggattggg aaacatacaa agccatcagt tggggccacct gatgattcaa 240
 caggcggccg ttgaaggaaa tatcggctac attgtccgct tttccgatca cgggcacaaa 300
 ttccattcgc ccttcgacaa ccattgcctca cattccgatt ctgacgaagc cggtagtccc 360
 gttgacggat tcagccttta ccgcatccat tgggacggat acgaacacca tcccgcgac 420
 ggctatgacg ggccacaggg cggcggttat cccgctccca aaggcgcgag ggatatatac 480
 agctacgaca taaaaggcgt tgcccaaaat atccgcctca acctgaccga caaccgcagc 540
 accggacaac ggcttgccga ccgtttccac aatgccggcg ctatgctgac gcaaggagta 600
 ggcgacggat tcaaacgcgc caccgcatac agccccgagc tggacagatc gggcaatgcc 660
 gccgaagcct tcaacggcac tgcagatata gtcaaaaaca tcatcggcgc ggcaggagaa 720
 attgtcggcg caggcgatgc cgtgcagggt ataagcgaag gctcaaacat tgctgtcatg 780
 cacggcttgg gtctgttttc caccgaaaac aagatggcg gcataacga tttggcagat 840
 atggcgcaac tcaaagacta tgccgcagca gccatccgcg attgggcagt ccaaaacccc 900
 aatgccgcac aaggcataga agccgtcagc aatatcttta tggcagccat ccccatcaaa 960
 gggattggag ctgtccgggg aaaatacggc ttggggcgga tcacggcaca tcctgtcaag 1020
 cggctgcaga tgggcgcgat cgcattgccg aaagggaaat ccgccgtcag cgacaatttt 1080
 gccgatgcgg catacgccaa ataccgcctc ccttaccatt cccgaaatat ccgttcaaac 1140
 ttggagcagc gttacggcaa agaaaacatc acctcctcaa ccgtgccgcc gtcaaacggc 1200
 aaaaatgtca aactggcaga ccaacgccac ccgaagacag gcgtaccgtt tgacggtaaa 1260
 gggtttccga attttgagaa gcacgtgaaa tatgatacga agctcgatat tcaagaatta 1320
 tcggggggcg gtatacctaa ggctaagcct gtgtttgatg cgaaaccgag atgggaggtt 1380
 gataggagc ttaataaatt gacaactcgt gacgaggtgg agaaaaatgt tcaggaaacg 1440
 agaagaagga gtcagagtag tcagttttaa gcccatgcgc aacgagaatg ggaaaaataa 1500
 acagggttag attttaatca ttttataggt ggtgatatac ataagaaagg cacagtaaca 1560
 ggagggcata gtctaaccg tggtgatgta cgggtgatac aacaaacctc ggcacctgat 1620
 aaacatgggg tttatcaagc gacagtggaa attaaaaagc ctgatggaag ttgggaggtg 1680
 aaaacgaaaa aaggtgggaa agtgatgacc aagcacacca tgttcccaaa agattgggat 1740
 gaggctagaa ttagggctga agttacttcg gcttgggaaa gtagaataat gcttaaggat 1800
 aataaatggc aggtacaag taaatcgggt attaaaatag aaggatttac cgaacctaat 1860
 agaacagcat atcccattta tgaatag 1887

<210> 464
 <211> 628
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<220>
 <221> misc_feature
 <222> (59)..(59)
 <223> Xaa= any amino acid

<400> 464

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Cys	Leu	Pro	Met	His	Ala	His	Ala	Ser	Asp	Leu	Ala	Asn	Asp	Pro	Phe
			20					25					30		
Ile	Arg	Gln	Val	Leu	Asp	Arg	Gln	His	Phe	Glu	Pro	Asp	Gly	Lys	Tyr
		35					40					45			
His	Leu	Phe	Gly	Ser	Arg	Gly	Glu	Leu	Ala	Xaa	Arg	Asn	Gly	His	Ile
	50					55					60				
Gly	Leu	Gly	Asn	Ile	Gln	Ser	His	Gln	Leu	Gly	His	Leu	Met	Ile	Gln
65				70					75					80	
Gln	Ala	Ala	Val	Glu	Gly	Asn	Ile	Gly	Tyr	Ile	Val	Arg	Phe	Ser	Asp
			85					90						95	
His	Gly	His	Lys	Phe	His	Ser	Pro	Phe	Asp	Asn	His	Ala	Ser	His	Ser
			100					105						110	
Asp	Ser	Asp	Glu	Ala	Gly	Ser	Pro	Val	Asp	Gly	Phe	Ser	Leu	Tyr	Arg
		115					120					125			
Ile	His	Trp	Asp	Gly	Tyr	Glu	His	His	Pro	Ala	Asp	Gly	Tyr	Asp	Gly
	130					135						140			
Pro	Gln	Gly	Gly	Gly	Tyr	Pro	Ala	Pro	Lys	Gly	Ala	Arg	Asp	Ile	Tyr
145					150					155					160
Ser	Tyr	Asp	Ile	Lys	Gly	Val	Ala	Gln	Asn	Ile	Arg	Leu	Asn	Leu	Thr
			165					170						175	
Asp	Asn	Arg	Ser	Thr	Gly	Gln	Arg	Leu	Ala	Asp	Arg	Phe	His	Asn	Ala
			180					185						190	
Gly	Ala	Met	Leu	Thr	Gln	Gly	Val	Gly	Asp	Gly	Phe	Lys	Arg	Ala	Thr
		195					200					205			
Arg	Tyr	Ser	Pro	Glu	Leu	Asp	Arg	Ser	Gly	Asn	Ala	Ala	Glu	Ala	Phe
	210					215					220				
Asn	Gly	Thr	Ala	Asp	Ile	Val	Lys	Asn	Ile	Ile	Gly	Ala	Ala	Gly	Glu
225					230					235					240
Ile	Val	Gly	Ala	Gly	Asp	Ala	Val	Gln	Gly	Ile	Ser	Glu	Gly	Ser	Asn
			245						250					255	
Ile	Ala	Val	Met	His	Gly	Leu	Gly	Leu	Leu	Ser	Thr	Glu	Asn	Lys	Met
			260					265					270		
Ala	Arg	Ile	Asn	Asp	Leu	Ala	Asp	Met	Ala	Gln	Leu	Lys	Asp	Tyr	Ala
		275					280					285			
Ala	Ala	Ala	Ile	Arg	Asp	Trp	Ala	Val	Gln	Asn	Pro	Asn	Ala	Ala	Gln

290	295	300
Gly Ile Glu Ala Val Ser Asn Ile Phe Met Ala Ala Ile Pro Ile Lys 305 310 315 320		
Gly Ile Gly Ala Val Arg Gly Lys Tyr Gly Leu Gly Gly Ile Thr Ala 325 330 335		
His Pro Val Lys Arg Ser Gln Met Gly Ala Ile Ala Leu Pro Lys Gly 340 345 350		
Lys Ser Ala Val Ser Asp Asn Phe Ala Asp Ala Ala Tyr Ala Lys Tyr 355 360 365		
Pro Ser Pro Tyr His Ser Arg Asn Ile Arg Ser Asn Leu Glu Gln Arg 370 375 380		
Tyr Gly Lys Glu Asn Ile Thr Ser Ser Thr Val Pro Pro Ser Asn Gly 385 390 395 400		
Lys Asn Val Lys Leu Ala Asp Gln Arg His Pro Lys Thr Gly Val Pro 405 410 415		
Phe Asp Gly Lys Gly Phe Pro Asn Phe Glu Lys His Val Lys Tyr Asp 420 425 430		
Thr Lys Leu Asp Ile Gln Glu Leu Ser Gly Gly Gly Ile Pro Lys Ala 435 440 445		
Lys Pro Val Phe Asp Ala Lys Pro Arg Trp Glu Val Asp Arg Lys Leu 450 455 460		
Asn Lys Leu Thr Thr Arg Glu Gln Val Glu Lys Asn Val Gln Glu Thr 465 470 475 480		
Arg Arg Arg Ser Gln Ser Ser Gln Phe Lys Ala His Ala Gln Arg Glu 485 490 495		
Trp Glu Asn Lys Thr Gly Leu Asp Phe Asn His Phe Ile Gly Gly Asp 500 505 510		
Ile Asn Lys Lys Gly Thr Val Thr Gly Gly His Ser Leu Thr Arg Gly 515 520 525		
Asp Val Arg Val Ile Gln Gln Thr Ser Ala Pro Asp Lys His Gly Val 530 535 540		
Tyr Gln Ala Thr Val Glu Ile Lys Lys Pro Asp Gly Ser Trp Glu Val 545 550 555 560		
Lys Thr Lys Lys Gly Gly Lys Val Met Thr Lys His Thr Met Phe Pro 565 570 575		
Lys Asp Trp Asp Glu Ala Arg Ile Arg Ala Glu Val Thr Ser Ala Trp 580 585 590		

Glu Ser Arg Ile Met Leu Lys Asp Asn Lys Trp Gln Gly Thr Ser Lys
 595 600 605

Ser Gly Ile Lys Ile Glu Gly Phe Thr Glu Pro Asn Arg Thr Ala Tyr
 610 615 620

Pro Ile Tyr Glu
 625

<210> 465
 <211> 1671
 <212> DNA
 <213> Neisseria meningitidis

<400> 465
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 catgcacacg cctcagattt ggcaaacgat tcttttatcc ggcagggttct cgaccgtcag 120
 catttcgaac ccgacgggaa ataccaccta ttccggcagca gggggggaact tgccgagcgc 180
 agcgggtcata tcggattggg aaacatacaa agccatcagt tgggcaacct gttcatccag 240
 caggcgggcca ttaaaggaaa tatcggtac attgtccgct tttccgatca cgggcacgaa 300
 gtccattccc cttcgacaa ccattgcctca cattccgatt ctgatgaagc cggtagtccc 360
 gttgacggat tcagccttta ccgcatccat tgggacggat acgaacacca tcccgccgac 420
 ggctatgacg ggccacaggg cggcggtat cccgctccca aaggcgcgag ggatatatac 480
 agctacgaca taaaaggcgt tgcccaaaat atccgcctca acctgaccga caaccgcagc 540
 accggacaac ggcttgctga ccgtttccac aataccggta gtatgctgac gcaaggagta 600
 ggcgacggat tcaaacgcgc caccgcatac agccccgagc tggacagatc gggcaatgcc 660
 gccgaagctt tcaacggcac tgcagatata gtcaaaaaca tcatcggcgc ggcaggagaa 720
 attgtcggcg caggcgatgc cgtgcagggt ataagcgaag gctcaaacat tgctgttatg 780
 cacggcttgg gtctgctttc caccgaaaac aagatggcgc gcatcaacga tttggcagat 840
 atggcgcaac tcaaagacta tgccgcagca gccatccgcg attgggcagt ccaaaacccc 900
 aatgccgcac aaggcataga agccgtcagc aatatcttta cggcagtcac ccccgctcaa 960
 gggattggag ctgttcgggg aaaatacggc ttgggcggca tcacggcaca tcctgtcaag 1020
 cggtcgcaga tgggcgagat cgcattgccg aaagggaaat ccgccgtcag cgacaatttt 1080
 gccgatgcgg catacgccaa ataccgcgtc ccttaccatt cccgaaatat ccgttcaaac 1140
 ttggagcagc gttacggcaa agaaaacatc acctcctcaa ccgtgccgcc gtcaaacgga 1200
 agaattgtga aactggcaaa caaacgccac ccgaagacca aagtgccggt tgacggtaaa 1260
 gggtttccga attttgaaaa agacgtaaaa tacgatacga gaattaatac cgctgtacca 1320
 caagtgaatc ctatagatga acccgtcttt aatcctaaag gttctgtcgg atcgggtcat 1380
 tcttgggtcta taactgccag aattcaatac gcaaaattac caaggcaagg tagaatcaga 1440
 tatatccac ctaaaaatta ctctccttca gcaccgctac caaaaggacc taataatgga 1500
 tatttgata aatttggtaa tgaatggact aaaggtccat caagaactaa aggtcaagaa 1560
 tttgaatggg atgttcaatt gtctaaaaca ggaagagagc aacttggatg ggctagtagg 1620
 gatggtaagc atttaaatat atcaattgat ggaaagatta cacacaaatg a 1671

<210> 466
 <211> 556
 <212> PRT
 <213> Neisseria meningitidis

<400> 466
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 Cys Leu Pro Met His Ala His Ala Ser Asp Leu Ala Asn Asp Ser Phe
 20 25 30

Ile	Arg	Gln	Val	Leu	Asp	Arg	Gln	His	Phe	Glu	Pro	Asp	Gly	Lys	Tyr	35	40	45
His	Leu	Phe	Gly	Ser	Arg	Gly	Glu	Leu	Ala	Glu	Arg	Ser	Gly	His	Ile	50	55	60
Gly	Leu	Gly	Asn	Ile	Gln	Ser	His	Gln	Leu	Gly	Asn	Leu	Phe	Ile	Gln	65	70	75
Gln	Ala	Ala	Ile	Lys	Gly	Asn	Ile	Gly	Tyr	Ile	Val	Arg	Phe	Ser	Asp	85	90	95
His	Gly	His	Glu	Val	His	Ser	Pro	Phe	Asp	Asn	His	Ala	Ser	His	Ser	100	105	110
Asp	Ser	Asp	Glu	Ala	Gly	Ser	Pro	Val	Asp	Gly	Phe	Ser	Leu	Tyr	Arg	115	120	125
Ile	His	Trp	Asp	Gly	Tyr	Glu	His	His	Pro	Ala	Asp	Gly	Tyr	Asp	Gly	130	135	140
Pro	Gln	Gly	Gly	Gly	Tyr	Pro	Ala	Pro	Lys	Gly	Ala	Arg	Asp	Ile	Tyr	145	150	155
Ser	Tyr	Asp	Ile	Lys	Gly	Val	Ala	Gln	Asn	Ile	Arg	Leu	Asn	Leu	Thr	165	170	175
Asp	Asn	Arg	Ser	Thr	Gly	Gln	Arg	Leu	Val	Asp	Arg	Phe	His	Asn	Thr	180	185	190
Gly	Ser	Met	Leu	Thr	Gln	Gly	Val	Gly	Asp	Gly	Phe	Lys	Arg	Ala	Thr	195	200	205
Arg	Tyr	Ser	Pro	Glu	Leu	Asp	Arg	Ser	Gly	Asn	Ala	Ala	Glu	Ala	Phe	210	215	220
Asn	Gly	Thr	Ala	Asp	Ile	Val	Lys	Asn	Ile	Ile	Gly	Ala	Ala	Gly	Glu	225	230	235
Ile	Val	Gly	Ala	Gly	Asp	Ala	Val	Gln	Gly	Ile	Ser	Glu	Gly	Ser	Asn	245	250	255
Ile	Ala	Val	Met	His	Gly	Leu	Gly	Leu	Leu	Ser	Thr	Glu	Asn	Lys	Met	260	265	270
Ala	Arg	Ile	Asn	Asp	Leu	Ala	Asp	Met	Ala	Gln	Leu	Lys	Asp	Tyr	Ala	275	280	285
Ala	Ala	Ala	Ile	Arg	Asp	Trp	Ala	Val	Gln	Asn	Pro	Asn	Ala	Ala	Gln	290	295	300
Gly	Ile	Glu	Ala	Val	Ser	Asn	Ile	Phe	Thr	Ala	Val	Ile	Pro	Val	Lys	305	310	315
Gly	Ile	Gly	Ala	Val	Arg	Gly	Lys	Tyr	Gly	Leu	Gly	Gly	Ile	Thr	Ala	325	330	335

His Pro Val Lys Arg Ser Gln Met Gly Glu Ile Ala Leu Pro Lys Gly
 340 345 350
 Lys Ser Ala Val Ser Asp Asn Phe Ala Asp Ala Ala Tyr Ala Lys Tyr
 355 360 365
 Pro Ser Pro Tyr His Ser Arg Asn Ile Arg Ser Asn Leu Glu Gln Arg
 370 375 380
 Tyr Gly Lys Glu Asn Ile Thr Ser Ser Thr Val Pro Pro Ser Asn Gly
 385 390 395 400
 Lys Asn Val Lys Leu Ala Asn Lys Arg His Pro Lys Thr Lys Val Pro
 405 410 415
 Phe Asp Gly Lys Gly Phe Pro Asn Phe Glu Lys Asp Val Lys Tyr Asp
 420 425 430
 Thr Arg Ile Asn Thr Ala Val Pro Gln Val Asn Pro Ile Asp Glu Pro
 435 440 445
 Val Phe Asn Pro Lys Gly Ser Val Gly Ser Ala His Ser Trp Ser Ile
 450 455 460
 Thr Ala Arg Ile Gln Tyr Ala Lys Leu Pro Arg Gln Gly Arg Ile Arg
 465 470 475 480
 Tyr Ile Pro Pro Lys Asn Tyr Ser Pro Ser Ala Pro Leu Pro Lys Gly
 485 490 495
 Pro Asn Asn Gly Tyr Leu Asp Lys Phe Gly Asn Glu Trp Thr Lys Gly
 500 505 510
 Pro Ser Arg Thr Lys Gly Gln Glu Phe Glu Trp Asp Val Gln Leu Ser
 515 520 525
 Lys Thr Gly Arg Glu Gln Leu Gly Trp Ala Ser Arg Asp Gly Lys His
 530 535 540
 Leu Asn Ile Ser Ile Asp Gly Lys Ile Thr His Lys
 545 550 555

<210> 467
 <211> 357
 <212> DNA
 <213> Neisseria meningitidis

<400> 467
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 ctgctgctgt ccctgctgat actgcttgcc cccaatgcgg tgttttgggt ttggcactg 120
 ctgaccgcca ccgcccggcc gattgtcaat ttggactatc ttcccggcgc gctgctgatc 180
 gccctgcctt ggcgtttcgt caaaattgcc ggcgtattgg cgttttggct ggcgggtttg 240
 ttgacgggc tgatgatggt gatccaactc ttccctttta tggatctcat cggcgccatc 300
 aacctcgtcc ctttcacact gaccgcccc gcccttatc agataatgac cgggctg 357

<210> 468

<211> 119
 <212> PRT
 <213> Neisseria meningitidis

<400> 468

Met Asn Ile His Thr Leu Leu Ser Lys Gln Trp Thr Leu Pro Pro Phe
 1 5 10 15
 Leu Pro Lys Arg Leu Leu Leu Ser Leu Leu Ile Leu Leu Ala Pro Asn
 20 25 30
 Ala Val Phe Trp Val Leu Ala Leu Leu Thr Ala Thr Ala Arg Pro Ile
 35 40 45
 Val Asn Leu Asp Tyr Leu Pro Ala Ala Leu Leu Ile Ala Leu Pro Trp
 50 55 60
 Arg Phe Val Lys Ile Ala Gly Val Leu Ala Phe Trp Leu Ala Val Leu
 65 70 75 80
 Phe Asp Gly Leu Met Met Val Ile Gln Leu Phe Pro Phe Met Asp Leu
 85 90 95
 Ile Gly Ala Ile Asn Leu Val Pro Phe Ile Leu Thr Ala Pro Ala Pro
 100 105 110
 Tyr Gln Ile Met Thr Gly Leu
 115

<210> 469
 <211> 1419
 <212> DNA
 <213> Neisseria meningitidis

<400> 469

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ctgctgctgt	ccctgctgat	actgcttgcc	cccaatgcgg	tgttttgggt	tttggcactg	120
ctgaccgcca	ccgcccgcgc	gattgtcaat	ttggactatc	ttcccgcgcg	gctgctgata	180
gccctgcctt	ggcggttcgt	caaaattgcc	ggcgatttgg	cgttttgggt	ggcggttttg	240
tttgacgggc	tgatgatggg	gatccaactc	ttccctttta	tggatctcat	cggcgccatc	300
aacctcgtcc	ccttcatact	gaccgcccc	gccccttata	agataatgac	cgggctgttg	360
ctgctgtata	tgctggcgat	gccgtttgtg	ttgcagaaag	ccgccgcca	aaccgacttc	420
cggcacattg	ccgtctgcgc	cgccgttggt	gcggcagccg	gctatttcac	cgccatttgc	480
agttactacg	accggggtcg	gatggccaat	atcttcggcg	caaacaactt	ctactacgcc	540
aaaagtcagg	cgatgctcta	caccgtcagc	cagaatgccg	actttattac	cgccggcctg	600
gtcgatcccc	tcttcctccc	cttgggcaat	caacagcggt	ccgccacgca	tctgaacgag	660
ccgaaatctc	aaaaaatcct	ctttatcgtc	gccgaatctt	gggggctgcc	ggccaatccc	720
gaacttcaaa	acgccacttt	tgccaaactg	ctggcgcaaa	aagaccgttt	ttcggtttgg	780
gaaagcggca	gttttcctct	catcggcgcg	acggctcgaag	gcgaaatgcg	cgaactgtgt	840
gcctacggcg	gtttgcgcgg	gttcgcactg	cgccgcgcgc	ccgacgaaaa	atttgcccgc	900
tgcttcccc	accgtttgaa	acaagaaggt	tacgccacct	ttgcgatgca	cggcgcgggc	960
agttcgcttt	acgaccgctt	cagctggtat	ccgagggcgg	gctttcaaga	aatcaaaacc	1020
gccgaaaacc	tgatcggtta	aaaaacctgc	gccattttcg	gcggcggtgt	cgacagcgag	1080
ctgttcggcg	aagtgtcggc	atttttcaaa	aaacacgaca	agggactgtt	ttactggatg	1140
acgctgacca	gccacgccga	ctatcccga	tccgacattt	tcaaccacag	gctcaaattgc	1200
accgaatatg	gcctgcccgc	cgaaaccgac	ctctgcccga	atttcagcct	gcacacccaa	1260

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caggggcacg tcgctgggt gaacttcaaa atcaaataa	1419

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 <212> PRT
 <213> Neisseria meningitidis

<400> 470
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 Ala Val Phe Trp Val Leu Ala Leu Leu Thr Ala Thr Ala Arg Pro Ile
 35 40 45
 Val Asn Leu Asp Tyr Leu Pro Ala Ala Leu Leu Ile Ala Leu Pro Trp
 50 55 60
 Arg Phe Val Lys Ile Ala Gly Val Leu Ala Phe Trp Leu Ala Val Leu
 65 70 75 80
 Phe Asp Gly Leu Met Met Val Ile Gln Leu Phe Pro Phe Met Asp Leu
 85 90 95
 Ile Gly Ala Ile Asn Leu Val Pro Phe Ile Leu Thr Ala Pro Ala Pro
 100 105 110
 Tyr Gln Ile Met Thr Gly Leu Leu Leu Leu Tyr Met Leu Ala Met Pro
 115 120 125
 Phe Val Leu Gln Lys Ala Ala Ala Lys Thr Asp Phe Arg His Ile Ala
 130 135 140
 Val Cys Ala Ala Val Val Ala Ala Ala Gly Tyr Phe Thr Gly His Leu
 145 150 155 160
 Ser Tyr Tyr Asp Arg Gly Arg Met Ala Asn Ile Phe Gly Ala Asn Asn
 165 170 175
 Phe Tyr Tyr Ala Lys Ser Gln Ala Met Leu Tyr Thr Val Ser Gln Asn
 180 185 190
 Ala Asp Phe Ile Thr Ala Gly Leu Val Asp Pro Val Phe Leu Pro Leu
 195 200 205
 Gly Asn Gln Gln Arg Ala Ala Thr His Leu Asn Glu Pro Lys Ser Gln
 210 215 220
 Lys Ile Leu Phe Ile Val Ala Glu Ser Trp Gly Leu Pro Ala Asn Pro
 225 230 235 240
 Glu Leu Gln Asn Ala Thr Phe Ala Lys Leu Leu Ala Gln Lys Asp Arg

245								250				255				
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Glu	Gly	Glu	Met	Arg	Glu	Leu	Cys	Ala	Tyr	Gly	Gly	Leu	Arg	Gly	Phe	
275								280				285				
Ala	Leu	Arg	Arg	Ala	Pro	Asp	Glu	Lys	Phe	Ala	Arg	Cys	Leu	Pro	Asn	
290								295				300				
Arg	Leu	Lys	Gln	Glu	Gly	Tyr	Ala	Thr	Phe	Ala	Met	His	Gly	Ala	Gly	
305								310				315				
Ser	Ser	Leu	Tyr	Asp	Arg	Phe	Ser	Trp	Tyr	Pro	Arg	Ala	Gly	Phe	Gln	
325								330				335				
Glu	Ile	Lys	Thr	Ala	Glu	Asn	Leu	Ile	Gly	Lys	Lys	Thr	Cys	Ala	Ile	
340								345				350				
Phe	Gly	Gly	Val	Cys	Asp	Ser	Glu	Leu	Phe	Gly	Glu	Val	Ser	Ala	Phe	
355								360				365				
Phe	Lys	Lys	His	Asp	Lys	Gly	Leu	Phe	Tyr	Trp	Met	Thr	Leu	Thr	Ser	
370								375				380				
His	Ala	Asp	Tyr	Pro	Glu	Ser	Asp	Ile	Phe	Asn	His	Arg	Leu	Lys	Cys	
385								390				395				
Thr	Glu	Tyr	Gly	Leu	Pro	Ala	Glu	Thr	Asp	Leu	Cys	Arg	Asn	Phe	Ser	
405								410				415				
Leu	His	Thr	Gln	Phe	Phe	Asp	Gln	Leu	Ala	Asp	Leu	Ile	Gln	Arg	Pro	
420								425				430				
Glu	Met	Lys	Gly	Thr	Glu	Val	Ile	Ile	Val	Gly	Asp	His	Pro	Pro	Pro	
435								440				445				
Val	Gly	Asn	Leu	Asn	Glu	Thr	Phe	Arg	Tyr	Leu	Lys	Gln	Gly	His	Val	
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<223> N= Unknown

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<223> N= Unknown

<220>
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<223> N= Unknown

<400> 471

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ctgaccgcca	ccgcccgc	gattgtca	ttggantac	ttcccgcgc	gctgctgatc	180
gccctgcctt	ggcgtntcg	caaaattgn	ggcgtattg	cgtnttggc	ggcgggtttg	240
tttgacgggc	tgatgatgg	gatccaa	ttcccttta	tggatctcat	cggcgccatc	300
aacctcg	ccttcac	gaccgcccc	gccctttat	agataatg	cgggctgtta	360
ctgctgtata	tgctggcg	gccgtttgt	ttgcagaa	ccgccgcaa	aaccgacttc	420
cgacacattg	ccgcctgtg	cgccgttgt	gtggcagcg	gctattttac	cggccatttg	480
agttantacg	accgggggcg	gatggcca	atcttcggc	caaacaact	ctattacgcc	540
aaaagtcagg	cgatgctcta	caccgtcag	cagaatg	actttattac	cgccggcctg	600
gtcgatcccg	tcttctccc	cttgggca	caacagcgt	ccgccacga	tctgaacgag	660
ccgaaatctc	aaaaaatc	ctttatcgt	gccgaatct	gggggctgc	ggccaatccc	720
gaacttcaaa	acgccacttt	tgccaaact	ctggcgcaa	aagancgtt	ttcgggttgg	780
gaaagcggca	gttttccctt	catcggcgc	acgatcga	gcgaaatgc	cgaactgtgt	840
gcctacggcg	gtttgcgcg	gttcgcact	cgccgcgcg	ccgacgaaa	atttgccgcg	900
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agttcgcttt	acgaccgctt	cagctggat	ccgagggcg	gctttcaaga	aatcaaaacc	1020
gccgaaaacc	tgatcggtaa	aaaaacctg	gccattttcg	gcggcgtgtg	cgacagcgag	1080
ctgttcggcg	aagtgtcggc	anttttcaaa	aaacacgaca	agggactgtt	ttactggatg	1140
acgctgacca	gccacgccga	ctatcccga	tengacattt	tcaaccacag	gctcaa	1200
accgaatatg	gcctgcccgc	cgaaaccgac	ntctgccgca	atttcagcct	gcacacccaa	1260
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atcgtcggcg	accatccgcc	gcccgtcggc	aacctcaatg	aaaccttc	ctacctcaaa	1380
caggggcacg	tcgntggct	gaacttcaaa	atcaataa			1419

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<211> 472

<212> PRT

<213> *Neisseria meningitidis*

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<223> Xaa= any amino acid

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<222> (465)..(465)

<223> Xaa= any amino acid

<400> 472

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			20					25					30		

Ala	Val	Phe	Trp	Val	Leu	Ala	Leu	Leu	Thr	Ala	Thr	Ala	Arg	Pro	Ile
		35					40					45			

Val	Asn	Leu	Xaa	Tyr	Leu	Pro	Ala	Ala	Leu	Leu	Ile	Ala	Leu	Pro	Trp
	50					55					60				

Arg	Xaa	Val	Lys	Ile	Xaa	Gly	Val	Leu	Ala	Xaa	Trp	Leu	Ala	Val	Leu
65				70						75				80	

Phe	Asp	Gly	Leu	Met	Met	Val	Ile	Gln	Leu	Phe	Pro	Phe	Met	Asp	Leu
				85					90					95	

Ile	Gly	Ala	Ile	Asn	Leu	Val	Pro	Phe	Ile	Xaa	Thr	Ala	Pro	Ala	Leu
			100					105						110	

Tyr	Gln	Ile	Met	Thr	Gly	Leu	Leu	Leu	Leu	Tyr	Met	Leu	Ala	Met	Pro
		115					120						125		

Phe	Val	Leu	Gln	Lys	Ala	Ala	Ala	Lys	Thr	Asp	Phe	Arg	His	Ile	Ala	130	135	140
Ala	Cys	Ala	Ala	Val	Val	Val	Ala	Ala	Gly	Tyr	Phe	Thr	Gly	His	Leu	145	150	155
Ser	Xaa	Tyr	Asp	Arg	Gly	Arg	Met	Ala	Asn	Ile	Phe	Gly	Ala	Asn	Asn	165	170	175
Phe	Tyr	Tyr	Ala	Lys	Ser	Gln	Ala	Met	Leu	Tyr	Thr	Val	Ser	Gln	Asn	180	185	190
Ala	Asp	Phe	Ile	Thr	Ala	Gly	Leu	Val	Asp	Pro	Val	Phe	Leu	Pro	Leu	195	200	205
Gly	Asn	Gln	Gln	Arg	Ala	Ala	Thr	His	Leu	Asn	Glu	Pro	Lys	Ser	Gln	210	215	220
Lys	Ile	Leu	Phe	Ile	Val	Ala	Glu	Ser	Trp	Gly	Leu	Pro	Ala	Asn	Pro	225	230	235
Glu	Leu	Gln	Asn	Ala	Thr	Phe	Ala	Lys	Leu	Leu	Ala	Gln	Lys	Xaa	Arg	245	250	255
Phe	Ser	Val	Trp	Glu	Ser	Gly	Ser	Phe	Pro	Phe	Ile	Gly	Ala	Thr	Ile	260	265	270
Glu	Gly	Glu	Met	Arg	Glu	Leu	Cys	Ala	Tyr	Gly	Gly	Leu	Arg	Gly	Phe	275	280	285
Ala	Leu	Arg	Arg	Ala	Pro	Asp	Glu	Lys	Phe	Ala	Arg	Cys	Leu	Pro	Asn	290	295	300
Arg	Leu	Lys	Gln	Glu	Gly	Tyr	Ala	Thr	Phe	Ala	Met	His	Gly	Ala	Gly	305	310	315
Ser	Ser	Leu	Tyr	Asp	Arg	Phe	Ser	Trp	Tyr	Pro	Arg	Ala	Gly	Phe	Gln	325	330	335
Glu	Ile	Lys	Thr	Ala	Glu	Asn	Leu	Ile	Gly	Lys	Lys	Thr	Cys	Ala	Ile	340	345	350
Phe	Gly	Gly	Val	Cys	Asp	Ser	Glu	Leu	Phe	Gly	Glu	Val	Ser	Ala	Xaa	355	360	365
Phe	Lys	Lys	His	Asp	Lys	Gly	Leu	Phe	Tyr	Trp	Met	Thr	Leu	Thr	Ser	370	375	380
His	Ala	Asp	Tyr	Pro	Glu	Ser	Asp	Ile	Phe	Asn	His	Arg	Leu	Lys	Cys	385	390	395
Thr	Glu	Tyr	Gly	Leu	Pro	Ala	Glu	Thr	Asp	Xaa	Cys	Arg	Asn	Phe	Ser	405	410	415
Leu	His	Thr	Gln	Phe	Phe	Asp	Gln	Leu	Ala	Asp	Leu	Ile	Gln	Arg	Pro	420	425	430

Glu Met Lys Gly Thr Glu Val Ile Ile Val Gly Asp His Pro Pro Pro
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Val Gly Asn Leu Asn Glu Thr Phe Arg Tyr Leu Lys Gln Gly His Val
 450 455 460

Xaa Trp Leu Asn Phe Lys Ile Lys
 465 470

<210> 473
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

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 <223> N= Unknown

<400> 473
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8

<210> 474
 <211> 209
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 474
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 20 25 30
 Ala Val Phe Trp Val Leu Ala Leu Leu Thr Ala Thr Ala Arg Pro Ile
 35 40 45
 Val Asn Leu Asp Tyr Leu Pro Ala Ala Leu Leu Ile Ala Leu Pro Trp
 50 55 60
 Arg Phe Val Lys Ile Ala Gly Val Leu Ala Phe Trp Pro Ala Val Leu
 65 70 75 80
 Phe Asp Gly Leu Met Met Val Ile Gln Leu Phe Pro Phe Met Asp Leu
 85 90 95
 Ile Gly Ala Ile Asn Leu Val Pro Phe Ile Leu Thr Ala Pro Ala Pro
 100 105 110
 Tyr Gln Ile Met Thr Gly Leu Leu Leu Leu Tyr Met Leu Ala Met Pro
 115 120 125
 Phe Val Leu Gln Lys Ala Ala Val Lys Thr Asp Phe Arg His Ile Ala
 130 135 140
 Val Cys Ala Ala Val Val Ala Ala Ala Arg Tyr Phe Thr Gly Pro Phe

145		150		155		160
Glu Leu Leu Arg Thr Gly Gly Arg Trp Gln Tyr Val Gln His Arg Arg						
	165			170		175
Leu Leu Leu Ser Gly Ser Arg Ala Ser Phe Arg Arg Arg Gln Lys Ala						
	180		185			190
Asp Val Leu Arg Arg Leu Gly Asn Pro Tyr Ala Ser Met Gly Asn Gly						
	195		200			205

Gly

<210> 475
 <211> 1419
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 475

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ctgaccgc	ccgccgcg	gattgtca	ttggacta	ttcccgcg	gctgctga	180
gccctgc	ggcgtttc	caaaattg	ggcgattg	cgttttgg	ggcggttt	240
tttgacgg	tgatgatg	gatccaac	ttcccttt	tggacctc	cggcgccat	300
aacctcgt	ccttcata	gaccgcccc	gcccctta	agataatg	cgggctgt	360
ctgctgt	tgctggcg	gccgtttg	ttgcaaaa	ccgccgtc	aaccgact	420
cgacacatt	ccgtctgt	cgccgttg	gcggcagc	gctatttc	cggccatt	480
agttacta	accggggg	gatggcca	atcttcgg	caaacaac	ctattacg	540
aaaagtc	cgatgctc	caccgtca	cagaatgc	actttatt	cgccggcc	600
gtcgaccc	tcttctcc	cttgggca	cagcagcg	ccgccacg	gctgagt	660
ccgaaatc	aaaaaatc	ctttatcg	gccgaatc	gggggctg	gggcaatc	720
gagcttca	acgccact	tgccaaac	ctggcgca	aagaccgt	ttcggttg	780
gaaagcgg	gttttccc	catcggcg	acggtcga	gcgaaatg	cgaattgt	840
gcctacgg	gtttgcgc	gttcgcac	cgccgcgc	ccgacgaa	atttgcgc	900
tgctcccc	accgtttg	acaagaag	tacgccac	ttgcgatg	cggcgcgg	960
agttcgct	acgaccgt	cagctggt	ccgaggcg	gctttcaa	aatcaaac	1020
gccgaaa	tgatcggt	aaaaacct	gccatttt	gcggcggt	cgacagcg	1080
ctgttcgg	aagtgtcg	atttttca	aaacacga	agggactg	ttactgg	1140
acgctgac	gccacgcc	ctatcccg	tccgacat	tcaaccac	gctcaa	1200
accgaata	gcctgccc	cgaaaccg	ctctgccg	atttcagc	gcacacca	1260
ttcttcga	aactggcg	tttgatcc	cgccccga	tgaaaggc	ggaagtc	1320
atcgtcgg	accatccg	gcccgtcg	aacctca	aaaccttc	ctacctca	1380
caggga	tcgcctgg	gcatttca	atcaata			1419

<210> 476
 <211> 472
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 476

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Leu Pro Lys Arg Leu Leu Leu Ser Leu Leu Ile Leu Leu Ala Pro Asn			
20	25	30	

Ala Val Phe Trp Val Leu Ala Leu Leu Thr Ala Thr Ala Arg Pro Ile	35	40	45
Val Asn Leu Asp Tyr Leu Pro Ala Ala Leu Leu Ile Ala Leu Pro Trp	50	55	60
Arg Phe Val Lys Ile Ala Gly Val Leu Ala Phe Trp Pro Ala Val Leu	65	70	75
Phe Asp Gly Leu Met Met Val Ile Gln Leu Phe Pro Phe Met Asp Leu	85	90	95
Ile Gly Ala Ile Asn Leu Val Pro Phe Ile Leu Thr Ala Pro Ala Pro	100	105	110
Tyr Gln Ile Met Thr Gly Leu Leu Leu Leu Tyr Met Leu Ala Met Pro	115	120	125
Phe Val Leu Gln Lys Ala Ala Val Lys Thr Asp Phe Arg His Ile Ala	130	135	140
Val Cys Ala Ala Val Val Ala Ala Ala Gly Tyr Phe Thr Gly His Leu	145	150	155
Ser Tyr Tyr Asp Arg Gly Arg Met Ala Asn Ile Phe Gly Ala Asn Asn	165	170	175
Phe Tyr Tyr Ala Lys Ser Gln Ala Met Leu Tyr Thr Val Ser Gln Asn	180	185	190
Ala Asp Phe Ile Thr Ala Gly Leu Val Asp Pro Val Phe Leu Pro Leu	195	200	205
Gly Asn Gln Gln Arg Ala Ala Thr Arg Leu Ser Glu Pro Lys Ser Gln	210	215	220
Lys Ile Leu Phe Ile Val Ala Glu Ser Trp Gly Leu Pro Gly Asn Pro	225	230	235
Glu Leu Gln Asn Ala Thr Phe Ala Lys Leu Leu Ala Gln Lys Asp Arg	245	250	255
Phe Ser Val Trp Glu Ser Gly Ser Phe Pro Phe Ile Gly Ala Thr Val	260	265	270
Glu Gly Glu Met Arg Glu Leu Cys Ala Tyr Gly Gly Leu Arg Gly Phe	275	280	285
Ala Leu Arg Arg Ala Pro Asp Glu Lys Phe Ala Arg Cys Leu Pro Asn	290	295	300
Arg Leu Lys Gln Glu Gly Tyr Ala Thr Phe Ala Met His Gly Ala Gly	305	310	315
Ser Ser Leu Tyr Asp Arg Phe Ser Trp Tyr Pro Arg Ala Gly Phe Gln	325	330	335

Lys Ile Lys Thr Ala Glu Asn Leu Ile Gly Lys Lys Thr Cys Ala Ile
340 345 350

Phe Gly Gly Val Cys Asp Ser Glu Leu Phe Gly Glu Val Ser Ala Phe
355 360 365

Phe Lys Lys His Asp Lys Gly Leu Phe Tyr Trp Met Thr Leu Thr Ser
370 375 380

His Ala Asp Tyr Pro Glu Ser Asp Ile Phe Asn His Arg Leu Lys Cys
385 390 395 400

Thr Glu Tyr Gly Leu Pro Ala Glu Thr Asp Leu Cys Arg Asn Phe Ser
405 410 415

Leu His Thr Gln Phe Phe Asp Gln Leu Ala Asp Leu Ile Arg Arg Pro
420 425 430

Glu Met Lys Gly Thr Glu Val Ile Ile Val Gly Asp His Pro Pro Pro
435 440 445

Val Gly Asn Leu Asn Glu Thr Phe Arg Tyr Leu Lys Gln Gly His Val
450 455 460

Ala Trp Leu His Phe Lys Ile Lys
465 470

<210> 477
<211> 415
<212> DNA
<213> Neisseria meningitidis

<400> 477
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tttatcgagc cgacaccgtg gacgcttgcc ggtttgggct tcctgatcgc gctgatgggc 180
tggatgcccg cgccgattga aatttccgcc atcaattctt tgtgggtaac cgaaaaacaa 240
cgcatcaatc cttccgaata ccgcgacggg atttttgaat tcaacgtcgg ttatatcgcc 300
agtgcggttt tggctttggt tttccttgca ctgggcgcgt agcgccgaac ggcaacggcg 360
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<210> 478
<211> 139
<212> PRT
<213> Neisseria meningitidis

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<223> Xaa= any amino acid

<220>
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<222> (121)..(121)
<223> Xaa= any amino acid

<400> 478

Val Ser Gly Arg Tyr Arg Ala Leu Asp Arg Val Ser Lys Ile Ile Ile
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Val Thr Leu Ser Ile Ala Thr Leu Ala Ala Ala Gly Ile Ala Met Ser
20 25 30

Arg Gly Met Gln Met Gln Ser Asp Phe Ile Glu Pro Thr Pro Trp Thr
35 40 45

Leu Ala Gly Leu Gly Phe Leu Ile Ala Leu Met Gly Trp Met Pro Ala
50 55 60

Pro Ile Glu Ile Ser Ala Ile Asn Ser Leu Trp Val Thr Glu Lys Gln
65 70 75 80

Arg Ile Asn Pro Ser Glu Tyr Arg Asp Gly Ile Phe Glu Phe Asn Val
85 90 95

Gly Tyr Ile Ala Ser Ala Val Leu Ala Leu Val Phe Leu Ala Leu Gly
100 105 110

Xaa Val Ala Pro Asn Gly Asn Gly Xaa Thr Val Gln Met Ala Gly Gly
115 120 125

Lys Tyr Asn Gly Gln Leu Ile Asn Met Tyr Ala
130 135

<210> 479

<211> 1254

<212> DNA

<213> Neisseria meningitidis

<400> 479

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ctttacggct	ggcagatcgc	gctcatcatc	atcctgacca	acctcttcaa	atacccgttt	180
ttccgcgttc	gcgcgcatta	cacgctggac	acgggcaaga	gcctgattga	aggttatgcc	240
gagaaaagcc	gcgtttattt	gtgggtattc	ctgattttgt	gcaccccttc	cgccacgatt	300
aacgcggggc	cggtcgccat	tgtaaccgcc	gccatcgtea	aaatggcgat	tccctcgctg	360
atgtttgatg	ccggcacggg	tgccgccttg	attatggcat	cctgcctgat	tattttgggtg	420
agcggacggt	accgcgcttt	ggatcgcggt	tccaaaatca	tcacggttac	tttgagtatc	480
gccacgcttg	ccgccgcggg	catcgctatg	tcgcgcggta	tcagatgca	gtccgatttt	540
atcgagccga	caccgtggac	gcttgccggg	ttgggcttcc	tgatcgcgct	gatgggctgg	600
atgcccgcgc	cgattgaaat	ttccgccatc	aattctttgt	gggtaaccga	aaaacaacgc	660
atcaatcctt	ccgaataccg	cgacgggatt	tttgatttca	acgtcggtta	tatcgccagt	720
gcgggttttg	ctttggtttt	ccttgcactg	ggcgcggttg	tgcaatacgg	caacggcgaa	780
gcagtgcaga	tggcggggcg	caaataatc	gggcaattga	tcaatatgta	cgccggttacc	840
atcggcggct	ggtcgcgccc	gctggtggcg	tttatcgctg	ttgcctgtat	gtacggcacg	900
acgattaccg	tcgtggacgg	ctatgcccg	gccattggcg	aaccgcgtgc	cctgctgcgc	960
ggaaaagaca	aaacggggcaa	cgccgaattc	tttgccctgga	atatttggtg	ggcgggcagc	1020
ggtttggcgg	tgattttctg	gtttgacggc	gtaatggcga	atctgctcaa	atttgcgatg	1080
attgccgctt	ttgtgtccgc	ccctgtgttt	gcctggctga	attaccggtt	ggttaaagggt	1140
gatgaaaaac	acaaactcac	atcagggtatg	aatgcccttg	cattggcagg	cttgatttat	1200
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<210> 480
<211> 417
<212> PRT
<213> Neisseria meningitidis

<400> 480

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35 40 45
Ile Ile Ile Leu Thr Asn Leu Phe Lys Tyr Pro Phe Phe Arg Phe Ser
50 55 60
Ala His Tyr Thr Leu Asp Thr Gly Lys Ser Leu Ile Glu Gly Tyr Ala
65 70 75 80
Glu Lys Ser Arg Val Tyr Leu Trp Val Phe Leu Ile Leu Cys Ile Leu
85 90 95
Ser Ala Thr Ile Asn Ala Gly Ala Val Ala Ile Val Thr Ala Ala Ile
100 105 110
Val Lys Met Ala Ile Pro Ser Leu Met Phe Asp Ala Gly Thr Val Ala
115 120 125
Ala Leu Ile Met Ala Ser Cys Leu Ile Ile Leu Val Ser Gly Arg Tyr
130 135 140
Arg Ala Leu Asp Arg Val Ser Lys Ile Ile Ile Val Thr Leu Ser Ile
145 150 155 160
Ala Thr Leu Ala Ala Ala Gly Ile Ala Met Ser Arg Gly Met Gln Met
165 170 175
Gln Ser Asp Phe Ile Glu Pro Thr Pro Trp Thr Leu Ala Gly Leu Gly
180 185 190
Phe Leu Ile Ala Leu Met Gly Trp Met Pro Ala Pro Ile Glu Ile Ser
195 200 205
Ala Ile Asn Ser Leu Trp Val Thr Glu Lys Gln Arg Ile Asn Pro Ser
210 215 220
Glu Tyr Arg Asp Gly Ile Phe Asp Phe Asn Val Gly Tyr Ile Ala Ser
225 230 235 240
Ala Val Leu Ala Leu Val Phe Leu Ala Leu Gly Ala Phe Val Gln Tyr
245 250 255
Gly Asn Gly Glu Ala Val Gln Met Ala Gly Gly Lys Tyr Ile Gly Gln
260 265 270

Leu Ile Asn Met Tyr Ala Val Thr Ile Gly Gly Trp Ser Arg Pro Leu
 275 280 285
 Val Ala Phe Ile Ala Phe Ala Cys Met Tyr Gly Thr Thr Ile Thr Val
 290 295 300
 Val Asp Gly Tyr Ala Arg Ala Ile Ala Glu Pro Val Arg Leu Leu Arg
 305 310 315 320
 Gly Lys Asp Lys Thr Gly Asn Ala Glu Phe Phe Ala Trp Asn Ile Trp
 325 330 335
 Val Ala Gly Ser Gly Leu Ala Val Ile Phe Trp Phe Asp Gly Val Met
 340 345 350
 Ala Asn Leu Leu Lys Phe Ala Met Ile Ala Ala Phe Val Ser Ala Pro
 355 360 365
 Val Phe Ala Trp Leu Asn Tyr Arg Leu Val Lys Gly Asp Glu Lys His
 370 375 380
 Lys Leu Thr Ser Gly Met Asn Ala Leu Ala Leu Ala Gly Leu Ile Tyr
 385 390 395 400
 Leu Thr Gly Phe Thr Val Leu Phe Leu Leu Asn Leu Ala Gly Met Phe
 405 410 415

Lys

<210> 481
 <211> 1254
 <212> DNA
 <213> Neisseria meningitidis

<400> 481
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 ctttacggct ggcagatcgc gctcatcatc atcctgacca acctcttcaa ataccggttt 180
 ttccgcttca gcgcgcatta cacgctggac acgggcaaga gcctgattga aggttatgcc 240
 gagaaaagcc gcgtttatct gtgggtatct ctgattttgt gcatcctctc cgccacgatt 300
 aacgcgggcg cggtcgccat tgtaaccgcc gccatcgtca aaatggcgat tccctcgctg 360
 atgtttgatg ccggcacggg tgccgccttg attatggcat cctgcctgat tattttgggtg 420
 agcggacgtt accgcgcttt ggatcgcggt tccaaaatca tcatcgttac tttgagtac 480
 gccacgcttg ccgcgcggg catcgctatg tcgcgcggta tgcagatgca gtccgatttt 540
 atcgagccga caccgtggac gcttgccggg ttgggcttcc tgatcgcgct gatgggctgg 600
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 atcaatcctt ccgaataaccg cgacgggatt tttgatttca acgtcgggta tatcgccagt 720
 gcgggttttg ctttggtttt ccttgcaactg ggcgcggttg tgcaatacgg caacggcgaa 780
 gcagtgcaga tggcggggcg caaatatctc gggcaattga tcaatatgta cgccgttacc 840
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 ggaaaagaca aaacgggcaa cgccgaattc tttgcctgga atatttgggt ggcggggcagc 1020
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 attgccgctt ttgtgtccgc ccctgtgttt gcctggctga attaccgttt ggtcaaaggt 1140
 gatgaaaaac acaaactcac atcaggtatg aatgcccttg cattggcagg cttgatttat 1200

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1254

<210> 482

<211> 417

<212> PRT

<213> Neisseria meningitidis

<400> 482

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			20					25					30		
Ile	Ala	Ser	Thr	Gln	Ala	Gly	Ala	Leu	Tyr	Gly	Trp	Gln	Ile	Ala	Leu
		35					40					45			
Ile	Ile	Ile	Leu	Thr	Asn	Leu	Phe	Lys	Tyr	Pro	Phe	Phe	Arg	Phe	Ser
	50					55					60				
Ala	His	Tyr	Thr	Leu	Asp	Thr	Gly	Lys	Ser	Leu	Ile	Glu	Gly	Tyr	Ala
65					70					75					80
Glu	Lys	Ser	Arg	Val	Tyr	Leu	Trp	Val	Phe	Leu	Ile	Leu	Cys	Ile	Leu
			85					90					95		
Ser	Ala	Thr	Ile	Asn	Ala	Gly	Ala	Val	Ala	Ile	Val	Thr	Ala	Ala	Ile
			100					105					110		
Val	Lys	Met	Ala	Ile	Pro	Ser	Leu	Met	Phe	Asp	Ala	Gly	Thr	Val	Ala
		115					120					125			
Ala	Leu	Ile	Met	Ala	Ser	Cys	Leu	Ile	Ile	Leu	Val	Ser	Gly	Arg	Tyr
	130					135					140				
Arg	Ala	Leu	Asp	Arg	Val	Ser	Lys	Ile	Ile	Ile	Val	Thr	Leu	Ser	Ile
145					150					155					160
Ala	Thr	Leu	Ala	Ala	Ala	Gly	Ile	Ala	Met	Ser	Arg	Gly	Met	Gln	Met
			165					170					175		
Gln	Ser	Asp	Phe	Ile	Glu	Pro	Thr	Pro	Trp	Thr	Leu	Ala	Gly	Leu	Gly
		180						185					190		
Phe	Leu	Ile	Ala	Leu	Met	Gly	Trp	Met	Pro	Ala	Pro	Ile	Glu	Ile	Ser
	195					200						205			
Ala	Ile	Asn	Ser	Leu	Trp	Val	Thr	Glu	Lys	Gln	Arg	Ile	Asn	Pro	Ser
	210					215					220				
Glu	Tyr	Arg	Asp	Gly	Ile	Phe	Asp	Phe	Asn	Val	Gly	Tyr	Ile	Ala	Ser
225				230						235				240	
Ala	Val	Leu	Ala	Leu	Val	Phe	Leu	Ala	Leu	Gly	Ala	Phe	Val	Gln	Tyr
			245					250					255		

Gly Asn Gly Glu Ala Val Gln Met Ala Gly Gly Lys Tyr Ile Gly Gln
 260 265 270
 Leu Ile Asn Met Tyr Ala Val Thr Ile Gly Gly Trp Ser Arg Pro Leu
 275 280 285
 Val Ala Phe Ile Ala Phe Ala Cys Met Tyr Gly Thr Thr Ile Thr Val
 290 295 300
 Val Asp Gly Tyr Ala Arg Ala Ile Ala Glu Pro Val Arg Leu Leu Arg
 305 310 315 320
 Gly Lys Asp Lys Thr Gly Asn Ala Glu Phe Phe Ala Trp Asn Ile Trp
 325 330 335
 Val Ala Gly Ser Gly Leu Ala Val Ile Phe Trp Phe Asp Gly Val Met
 340 345 350
 Ala Asn Leu Leu Lys Phe Ala Met Ile Ala Ala Phe Val Ser Ala Pro
 355 360 365
 Val Phe Ala Trp Leu Asn Tyr Arg Leu Val Lys Gly Asp Glu Lys His
 370 375 380
 Lys Leu Thr Ser Gly Met Asn Ala Leu Ala Leu Ala Gly Leu Ile Tyr
 385 390 395 400
 Leu Thr Gly Phe Thr Val Leu Phe Leu Leu Asn Leu Ala Gly Met Phe
 405 410 415

Lys

<210> 483
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
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 <223> N= Unknown

<400> 483
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8

<210> 484
 <211> 269
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 484
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Ala	Ile	Val	Lys	Met	Ala	Ile	Pro	Ser	Leu	Met	Phe	Asp	Ala	Gly	Thr	
35					40					45						
Val	Ala	Ala	Leu	Ile	Met	Ala	Ser	Cys	Leu	Ile	Ile	Leu	Val	Ser	Gly	
50					55					60						
Arg	Tyr	Arg	Ala	Leu	Asp	Arg	Val	Ser	Lys	Ile	Ile	Ile	Val	Thr	Leu	
65					70					75					80	
Ser	Ile	Ala	Thr	Leu	Ala	Ala	Ala	Gly	Ile	Ala	Met	Ser	Arg	Gly	Met	
85					90					95						
Gln	Met	Gln	Pro	Asp	Phe	Ile	Glu	Pro	Thr	Pro	Trp	Thr	Leu	Ala	Gly	
100					105					110						
Leu	Gly	Phe	Leu	Ile	Ala	Leu	Met	Gly	Trp	Met	Pro	Ala	Pro	Ile	Glu	
115					120					125						
Ile	Ser	Ala	Ile	Asn	Ser	Leu	Trp	Val	Thr	Glu	Lys	Gln	Arg	Ile	Asn	
130					135					140						
Pro	Ser	Glu	Tyr	Arg	Asp	Gly	Ile	Phe	Asp	Phe	Asn	Val	Gly	Tyr	Ile	
145					150					155					160	
Ala	Ser	Ala	Val	Leu	Ala	Leu	Val	Phe	Leu	Ala	Leu	Gly	Ala	Phe	Val	
165					170					175						
Gln	Tyr	Gly	Asn	Gly	Glu	Ala	Val	Gln	Met	Gly	Gly	Gly	Lys	Tyr	Ile	
180					185					190						
Gly	Gln	Leu	Ile	Asn	Met	Tyr	Ala	Val	Thr	Ile	Gly	Gly	Gly	Ser	Arg	
195					200					205						
Pro	Leu	Val	Ala	Phe	Ile	Ala	Phe	Ala	Cys	Met	Tyr	Gly	Ala	Ala	Ser	
210					215					220						
Thr	Val	Val	Asp	Gly	Tyr	Ala	Arg	Ala	Ile	Ala	Glu	Pro	Val	Arg	Leu	
225					230					235					240	
Leu	Arg	Gly	Lys	Asp	Lys	Thr	Ala	Arg	Pro	Ile	Val	Leu	Leu	Glu	Lys	
245					250					255						
Leu	Gly	Gly	Arg	His	Arg	Phe	Gly	Arg	Asp	Phe	Leu	Val				
260					265											

<210> 485
 <211> 1014
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 485	
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atgtttgatg ccggcacggg tgccgccttg attatggcat cctgcctgat tattttggtg	180

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gccacgcttg	cgcgcgcgg	catcgctatg	tcgcgcggt	tgcatatgca	gcccgaatttt	300
atcgagccga	caccgtggac	gcttgccggg	ttgggcttcc	tgatcgcgct	gatgggctgg	360
atgccgcgc	cgatcgaaat	ttccgccatc	aattctttgt	gggtaaccga	aaaacaacgc	420
atcaatcctt	ctgaataaccg	cgacgggatt	ttcgatttca	acgtcggtta	tatcgccagt	480
gcggttttgg	ctttggtttt	ccttgcaactg	ggcgcggttg	tgcaatacgg	caacggcgaa	540
gcagtgcaga	tggcggggcg	caaataatc	gggcaattga	ttaatatgta	tgccgtaacc	600
atcggcggct	ggtctcgctc	gctgggtggc	tttatcgcg	ttgcctgtat	gtacggcacg	660
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<210> 486
 <211> 337
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 486
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 20 25 30
 Val Lys Met Ala Ile Pro Ser Leu Met Phe Asp Ala Gly Thr Val Ala
 35 40 45
 Ala Leu Ile Met Ala Ser Cys Leu Ile Ile Leu Val Ser Gly Arg Tyr
 50 55 60
 Arg Ala Leu Asp Arg Val Ser Lys Ile Ile Ile Val Thr Leu Ser Ile
 65 70 75 80
 Ala Thr Leu Ala Ala Ala Gly Ile Ala Met Ser Arg Gly Met Gln Met
 85 90 95
 Gln Pro Asp Phe Ile Glu Pro Thr Pro Trp Thr Leu Ala Gly Leu Gly
 100 105 110
 Phe Leu Ile Ala Leu Met Gly Trp Met Pro Ala Pro Ile Glu Ile Ser
 115 120 125
 Ala Ile Asn Ser Leu Trp Val Thr Glu Lys Gln Arg Ile Asn Pro Ser
 130 135 140
 Glu Tyr Arg Asp Gly Ile Phe Asp Phe Asn Val Gly Tyr Ile Ala Ser
 145 150 155 160
 Ala Val Leu Ala Leu Val Phe Leu Ala Leu Gly Ala Phe Val Gln Tyr
 165 170 175
 Gly Asn Gly Glu Ala Val Gln Met Ala Gly Gly Lys Tyr Ile Gly Gln
 180 185 190

Leu Ile Asn Met Tyr Ala Val Thr Ile Gly Gly Trp Ser Arg Pro Leu
 195 200 205
 Val Ala Phe Ile Ala Phe Ala Cys Met Tyr Gly Thr Thr Ile Thr Val
 210 215 220
 Val Asp Gly Tyr Ala Arg Ala Ile Ala Glu Pro Val Arg Leu Leu Arg
 225 230 235 240
 Gly Arg Asp Lys Thr Gly Asn Ala Glu Leu Phe Ala Trp Asn Ile Trp
 245 250 255
 Val Ala Gly Ser Gly Leu Ala Val Ile Phe Trp Phe Asp Gly Ala Met
 260 265 270
 Ala Glu Leu Leu Lys Phe Ala Met Ile Ala Ala Phe Val Ser Ala Pro
 275 280 285
 Val Phe Ala Trp Leu Asn Tyr Arg Leu Val Lys Gly Asp Lys Arg His
 290 295 300
 Arg Leu Thr Ala Gly Met Asn Ala Leu Ala Ile Val Gly Leu Leu Tyr
 305 310 315 320
 Leu Ala Gly Phe Ala Val Leu Phe Leu Leu Asn Leu Thr Gly Leu Leu
 325 330 335

Ala

<210> 487
 <211> 309
 <212> DNA
 <213> Neisseria meningitidis

<400> 487
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 caggaaaaga aaggggaaaa acaggcggag ctgcctgaaa tcaaagacgg tatgcccgat 180
 tttcccgaac ttgccctgat gcttttccac gccgtcaaaa cggcagtgta ttggctgttt 240
 gtcggtgtcg tccgtttctg ccgaaactat ctggcgcacg aatccgaacc ggacaggccc 300
 gttccgcct 309

<210> 488
 <211> 103
 <212> PRT
 <213> Neisseria meningitidis

<400> 488
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 Val Ala Leu Ala Gly Leu Phe Phe Val Arg Ala Gln Ser Glu Arg Glu
 20 25 30
 Trp Met Arg Glu Val Ser Ala Trp Gln Glu Lys Lys Gly Glu Lys Gln

35

40

45

Ala Glu Leu Pro Glu Ile Lys Asp Gly Met Pro Asp Phe Pro Glu Leu
50 55 60

Ala Leu Met Leu Phe His Ala Val Lys Thr Ala Val Tyr Trp Leu Phe
65 70 75 80

Val Gly Val Val Arg Phe Cys Arg Asn Tyr Leu Ala His Glu Ser Glu
85 90 95

Pro Asp Arg Pro Val Pro Pro
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<210> 489
<211> 3045
<212> DNA
<213> Neisseria meningitidis

<400> 489
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gaaaaacagg cggagctgcc tgaaatcaaa gacggatgac ccgattttcc cgaacttgcc 180
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attgcaactg ccgtaatcga caaccgcgcg atcccattcg accggagtat tgctgaaggg 480
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gaagaagcaa cgcggtgcttt aaacagcgcg gctttaaggg aaacgaaaaa acgctatatc 600
gatgcatttg agaaaaacga aacagcggtc cccaaagtcc gcgtgtccga taccctgatg 660
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caagggcagt ccgtttcaga cggcacggcc gtccgcgatg cccgccgccg cgtttccgtc 960
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aaccgcgccg	cgcgtctgat	tgaccagatg	gaggcggaag	gcattgtgtc	cgcaccggaa	3000
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<210> 490

<211> 1014

<212> PRT

<213> *Neisseria meningitidis*

<400> 490

Met	Phe	Trp	Ile	Val	Leu	Ile	Val	Ile	Leu	Leu	Leu	Ala	Leu	Ala	Gly	
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Arg	Leu	Met	Ser	Phe	Met	Gly	Val	Arg	Asn	Leu	Ala	Gly	Phe	Asn	Gln	755	760	765
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Glu	Asn	Leu	Leu	Gly	Gln	Gly	Asp	Met	Leu	Phe	Leu	Pro	Pro	Gly	Thr	
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Ala	Tyr	Pro	Gln	Arg	Val	His	Gly	Ala	Phe	Ala	Ser	Asp	Glu	Glu	Val	
			900					905					910			
His	Arg	Val	Val	Glu	Tyr	Leu	Lys	Gln	Phe	Gly	Glu	Pro	Asp	Tyr	Val	
		915					920					925				
Asp	Asp	Xaa	Leu	Ser	Gly	Gly	Met	Ser	Asp	Asp	Leu	Leu	Gly	Ile	Ser	
		930				935					940					
Arg	Ser	Gly	Asp	Gly	Glu	Thr	Asp	Pro	Met	Tyr	Asp	Glu	Ala	Val	Ser	
		945			950					955					960	
Val	Val	Leu	Lys	Thr	Arg	Lys	Ala	Ser	Ile	Ser	Gly	Val	Gln	Arg	Ala	
			965					970					975			
Leu	Arg	Ile	Gly	Tyr	Asn	Arg	Ala	Ala	Arg	Leu	Ile	Asp	Gln	Met	Glu	
		980					985						990			
Ala	Glu	Gly	Ile	Val	Ser	Ala	Pro	Glu	His	Asn	Gly	Asn	Arg	Thr	Ile	
		995					1000					1005				
Leu	Val	Pro	Xaa	Asp	Asn	Ala										
		1010				1015										

<210> 493
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 <212> DNA
 <213> Neisseria gonorrhoeae

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<221> misc_feature
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<223> N= Unknown

<400> 493
nnnnnnnnn

8

<210> 494
<211> 925
<212> PRT
<213> Neisseria gonorrhoeae

<400> 494
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Glu Ala Glu Thr Glu Ala Ala Glu Ala Ala Glu Glu Glu Ala Ala Asp
35 40 45
Thr Glu Asp Ile Ala Thr Ala Val Ile Asp Asn Arg Arg Ile Pro Phe
50 55 60
Asp Arg Ser Ile Ala Glu Gly Leu Met Gln Ser Glu Ser Lys Thr Ser
65 70 75 80
Pro Val Arg Pro Val Phe Lys Glu Ile Thr Leu Glu Glu Ala Thr Arg
85 90 95
Ala Leu Ser Ser Ala Ala Leu Arg Glu Thr Lys Lys Arg Tyr Ile Asp
100 105 110
Ala Phe Glu Lys Asn Gly Thr Ala Val Pro Lys Val Arg Val Ser Asp
115 120 125
Thr Pro Met Glu Gly Leu Gln Ile Ile Gly Leu Asp Asp Pro Val Leu
130 135 140
Gln Arg Thr Tyr Ser Arg Met Phe Asp Ala Asp Lys Glu Ala Phe Ser
145 150 155 160
Glu Ser Ala Asp Tyr Gly Phe Glu Pro Tyr Phe Glu Lys Gln His Pro
165 170 175
Ser Ala Phe Ser Ala Val Lys Ala Glu Asn Ala Arg Asn Ala Pro Phe
180 185 190
Arg Arg His Ala Gly Gln Glu Lys Gly Gln Ala Glu Ala Lys Ser Pro
195 200 205
Asp Val Ser Gln Gly Gln Ser Val Ser Asp Gly Thr Ala Val Arg Asp
210 215 220

Ala	Arg	Arg	Arg	Val	Ser	Val	Asn	Leu	Lys	Glu	Pro	Asn	Lys	Ala	Thr	225	230	235	240
Val	Ser	Ala	Glu	Ala	Arg	Ile	Ser	Arg	Leu	Ile	Pro	Glu	Ser	Arg	Thr	245	250	255	
Val	Val	Gly	Lys	Arg	Asp	Val	Glu	Met	Pro	Ser	Glu	Thr	Glu	Asn	Val	260	265	270	
Phe	Thr	Glu	Thr	Val	Ser	Ser	Val	Gly	Tyr	Gly	Gly	Pro	Val	Tyr	Asp	275	280	285	
Glu	Ala	Ala	Asp	Ile	His	Ile	Glu	Glu	Pro	Ala	Ala	Pro	Asp	Ala	Trp	290	295	300	
Val	Val	Glu	Pro	Pro	Glu	Val	Pro	Glu	Val	Ala	Val	Pro	Glu	Ile	Asp	305	310	315	320
Ile	Leu	Pro	Pro	Pro	Pro	Val	Ser	Glu	Ile	Tyr	Asn	Arg	Thr	Tyr	Glu	325	330	335	
Pro	Pro	Ala	Gly	Phe	Glu	Gln	Ala	Gln	Arg	Ser	Arg	Ile	Ala	Glu	Thr	340	345	350	
Asp	His	Leu	Ala	Ala	Asp	Val	Leu	Asn	Gly	Gly	Trp	Gln	Glu	Glu	Thr	355	360	365	
Ala	Ala	Ile	Ala	Asp	Asp	Gly	Ser	Glu	Gly	Ala	Ala	Glu	Arg	Ser	Ser	370	375	380	
Gly	Gln	Tyr	Leu	Ser	Glu	Thr	Glu	Ala	Phe	Gly	His	Asp	Ser	Gln	Ala	385	390	395	400
Val	Cys	Pro	Phe	Glu	Asp	Val	Pro	Ser	Glu	Arg	Pro	Ser	Cys	Arg	Val	405	410	415	
Ser	Asp	Thr	Glu	Ala	Asp	Glu	Gly	Ala	Phe	Gln	Ser	Glu	Glu	Thr	Gly	420	425	430	
Ala	Val	Ser	Glu	His	Leu	Pro	Thr	Thr	Asp	Leu	Leu	Leu	Pro	Pro	Leu	435	440	445	
Phe	Asn	Pro	Glu	Ala	Thr	Gln	Thr	Glu	Glu	Glu	Leu	Leu	Glu	Asn	Ser	450	455	460	
Ile	Thr	Ile	Glu	Glu	Lys	Leu	Ala	Glu	Phe	Lys	Val	Lys	Val	Lys	Val	465	470	475	480
Val	Asp	Ser	Tyr	Ser	Gly	Pro	Val	Ile	Thr	Arg	Tyr	Glu	Ile	Glu	Pro	485	490	495	
Asp	Val	Gly	Val	Arg	Gly	Asn	Ser	Val	Leu	Asn	Leu	Glu	Lys	Asp	Leu	500	505	510	
Ala	Arg	Ser	Leu	Gly	Val	Ala	Ser	Ile	Arg	Val	Val	Glu	Thr	Ile	Pro	515	520	525	

Gly Lys Thr Cys Met Gly Leu Glu Leu Pro Asn Pro Lys Arg Gln Met
530 535 540

Ile Arg Leu Ser Glu Ile Phe Asn Ser Pro Glu Phe Ala Glu Ser Lys
545 550 555 560

Ser Lys Leu Thr Leu Ala Leu Gly Gln Asp Ile Thr Gly Gln Pro Val
565 570 575

Val Thr Asp Leu Gly Lys Ala Pro His Leu Leu Val Ala Gly Thr Thr
580 585 590

Gly Ser Gly Lys Ser Val Gly Val Asn Ala Met Ile Leu Ser Met Leu
595 600 605

Phe Lys Ala Ala Pro Glu Asp Val Arg Met Ile Met Ile Asp Pro Lys
610 615 620

Met Leu Glu Leu Ser Ile Tyr Glu Gly Ile Thr His Leu Leu Ala Pro
625 630 635 640

Val Val Thr Asp Met Lys Leu Ala Ala Asn Ala Leu Asn Trp Cys Val
645 650 655

Asn Glu Met Glu Lys Arg Tyr Arg Leu Met Ser Phe Met Gly Val Arg
660 665 670

Asn Leu Ala Gly Phe Asn Gln Lys Ile Ala Glu Ala Ala Ala Arg Gly
675 680 685

Glu Lys Ile Gly Asn Pro Phe Ser Leu Thr Pro Asp Asp Pro Glu Pro
690 695 700

Leu Glu Lys Leu Pro Phe Ile Val Val Val Val Asp Glu Phe Ala Asp
705 710 715 720

Leu Met Met Thr Ala Gly Lys Lys Ile Glu Glu Leu Ile Ala Arg Leu
725 730 735

Ala Gln Lys Ala Arg Ala Ala Gly Ile His Leu Ile Leu Ala Thr Gln
740 745 750

Arg Pro Ser Val Asp Val Ile Thr Gly Leu Ile Lys Ala Asn Ile Pro
755 760 765

Thr Arg Ile Ala Phe Gln Val Ser Ser Lys Ile Asp Ser Arg Thr Ile
770 775 780

Leu Asp Gln Met Gly Ala Glu Asn Leu Leu Gly Gln Gly Asp Met Leu
785 790 795 800

Phe Leu Pro Pro Gly Thr Ala Tyr Pro Gln Arg Val His Gly Ala Phe
805 810 815

Ala Ser Asp Glu Glu Val His Arg Val Val Glu Tyr Leu Lys Gln Phe
820 825 830

Gly Glu Pro Asp Tyr Val Asp Asp Ile Leu Ser Gly Gly Gly Ser Glu
835 840 845

Glu Leu Pro Gly Ile Gly Arg Ser Gly Asp Gly Glu Thr Asp Pro Met
850 855 860

Tyr Asp Glu Ala Val Ser Val Val Leu Lys Thr Arg Lys Ala Ser Ile
865 870 875 880

Ser Gly Val Gln Arg Ala Leu Arg Ile Gly Tyr Asn Arg Ala Ala Arg
885 890 895

Leu Ile Asp Gln Met Glu Ala Glu Gly Ile Val Ser Ala Pro Glu His
900 905 910

Asn Gly Asn Arg Thr Ile Leu Val Pro Leu Asp Asn Ala
915 920 925

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<211> 3045
<212> DNA
<213> Neisseria gonorrhoeae

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gaaaaacagg cggagctgcc tgaaatcaaa gacggtatgc ccgattttcc cgagttttcc 180
ctgatgcttt tccatgccgt caaaacggca gtgtattggc tgtttgctgg tgctgctccgt 240
ttctgcccga actatctggc gcacgaatcc gaaccggaca ggcccgttcc gcctgcttct 300
gcaaaccgtg cggatgttcc gaccgcatcc gacgggtatt cagacagtgg aaacgggacg 360
gaagaagcgg aaacggaagc agcagaagct gcggaggaag aggtgcccga tacggaagac 420
attgcaactg ccgtaatcga caaccgccc atcccattcg accggagtat tgctgaaggg 480
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gaagaagcaa cgcgtgcttt aagcagcgcg gctttaaggg aaacgaaaaa acgctatatc 600
gatgcatttg agaaaaacgg aacagccgct cccaaagtac gcgtgtccga taccgccgatg 660
gaagggctgc agattatcgg tttggacgac cctgtgcttc aacgcacgta tcccgatag 720
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caagggcagt ccgtttcaga cggcacagcc gtccgcgatg cccgccgccg cgtttccgctc 960
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ccggaaagtc ggacggttgt cgggaaacgg gatgtcgaaa tgccgtctga aaccgaaaat 1080
gttttcacgg aaaccgtttc gtctgtggga tacggcggtc cggtttatga tgaagctgcc 1140
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ccggaggtag ccgtaccgca aatcgatatt ctgccgccgc ctcccgtatc ggaaatctac 1260
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tgcatgggtt tggaacttcc gaaccgaaa cgccaaatga tacgcctgag cgaaattttc 1920

aattcgcccg	agtttgccga	atccaaatcc	aagctgacgc	tcgcgctcgg	tcaggacatt	1980
accggacagc	ccgtcgtaac	cgacttgggc	aaagcacgcg	atttgctggt	tgccggcacg	2040
accggttcgg	gcaaatacgt	gggtgtcaac	gcgatgattc	tgtctatgct	tttcaaagcc	2100
gcgccggaag	acgtgcgtat	gattatgata	gatccgaaaa	tgctggaatt	gagcatttac	2160
gaaggcatca	cgcacctgct	cgccccctgtc	gttaccgata	tgaagctggc	ggcaaacgcg	2220
ctgaactggt	gtgttaacga	aatggaaaaa	cgtaccgcc	tgatgagctt	tatgggcgtg	2280
cgcaatcctg	cgggcttcaa	ccaaaaaatc	gccgaagccg	cagcaagggg	agaaaaaatc	2340
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ctgattgcgc	gcctcgccca	aaaagccccgc	gcggcaggca	tccaccttat	ccttgccaca	2520
caacgcccc	gcgtcgatgt	catcacgggt	ctgattaagg	cgaacatccc	gacgcgtatc	2580
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gttcacggcg	cgtttgcctc	ggatgaagag	gtgcaccgcg	tggtcgaata	tctgaagcag	2760
tttggcgagc	cggactatgt	tgacgatatt	ttgagcggcg	gcggcagcga	agagctgccc	2820
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gtcctgaaaa	cgcgcaaagc	cagcatttcg	ggcgtacagc	gcgccttgcg	catcggctac	2940
aaccgcgccg	cgcgtctgat	tgaccaa	gaagcggaag	gcattgtgtc	cgcaccggaa	3000
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<210> 496

<211> 1014

<212> PRT

<213> Neisseria gonorrhoeae

<400> 496

Met	Phe	Trp	Ile	Val	Leu	Ile	Val	Ile	Val	Leu	Leu	Ala	Leu	Ala	Gly
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Leu	Phe	Phe	Val	Arg	Ala	Gln	Ser	Glu	Arg	Glu	Trp	Met	Arg	Glu	Val
			20					25					30		

Ser	Ala	Trp	Gln	Glu	Lys	Lys	Gly	Glu	Lys	Gln	Ala	Glu	Leu	Pro	Glu
			35				40					45			

Ile	Lys	Asp	Gly	Met	Pro	Asp	Phe	Pro	Glu	Phe	Ser	Leu	Met	Leu	Phe
	50					55					60				

His	Ala	Val	Lys	Thr	Ala	Val	Tyr	Trp	Leu	Phe	Val	Gly	Val	Val	Arg
65					70					75					80

Phe	Cys	Arg	Asn	Tyr	Leu	Ala	His	Glu	Ser	Glu	Pro	Asp	Arg	Pro	Val
				85					90					95	

Pro	Pro	Ala	Ser	Ala	Asn	Arg	Ala	Asp	Val	Pro	Thr	Ala	Ser	Asp	Gly
			100					105						110	

Tyr	Ser	Asp	Ser	Gly	Asn	Gly	Thr	Glu	Glu	Ala	Glu	Thr	Glu	Ala	Ala
		115					120						125		

Glu	Ala	Ala	Glu	Glu	Glu	Ala	Ala	Asp	Thr	Glu	Asp	Ile	Ala	Thr	Ala
		130					135				140				

Val	Ile	Asp	Asn	Arg	Arg	Ile	Pro	Phe	Asp	Arg	Ser	Ile	Ala	Glu	Gly
145					150					155					160

Leu Met Gln Ser Glu Ser Lys Thr Ser Pro Val Arg Pro Val Phe Lys
 165 170 175
 Glu Ile Thr Leu Glu Glu Ala Thr Arg Ala Leu Ser Ser Ala Ala Leu
 180 185 190
 Arg Glu Thr Lys Lys Arg Tyr Ile Asp Ala Phe Glu Lys Asn Gly Thr
 195 200 205
 Ala Val Pro Lys Val Arg Val Ser Asp Thr Pro Met Glu Gly Leu Gln
 210 215 220
 Ile Ile Gly Leu Asp Asp Pro Val Leu Gln Arg Thr Tyr Ser Arg Met
 225 230 235 240
 Phe Asp Ala Asp Lys Glu Ala Phe Ser Glu Ser Ala Asp Tyr Gly Phe
 245 250 255
 Glu Pro Tyr Phe Glu Lys Gln His Pro Ser Ala Phe Ser Ala Val Lys
 260 265 270
 Ala Glu Asn Ala Arg Asn Ala Pro Phe Arg Arg His Ala Gly Gln Glu
 275 280 285
 Lys Gly Gln Ala Glu Ala Lys Ser Pro Asp Val Ser Gln Gly Gln Ser
 290 295 300
 Val Ser Asp Gly Thr Ala Val Arg Asp Ala Arg Arg Arg Val Ser Val
 305 310 315 320
 Asn Leu Lys Glu Pro Asn Lys Ala Thr Val Ser Ala Glu Ala Arg Ile
 325 330 335
 Ser Arg Leu Ile Pro Glu Ser Arg Thr Val Val Gly Lys Arg Asp Val
 340 345 350
 Glu Met Pro Ser Glu Thr Glu Asn Val Phe Thr Glu Thr Val Ser Ser
 355 360 365
 Val Gly Tyr Gly Gly Pro Val Tyr Asp Glu Ala Ala Asp Ile His Ile
 370 375 380
 Glu Glu Pro Ala Ala Pro Asp Ala Trp Val Val Glu Pro Pro Glu Val
 385 390 395 400
 Pro Glu Val Ala Val Pro Glu Ile Asp Ile Leu Pro Pro Pro Pro Val
 405 410 415
 Ser Glu Ile Tyr Asn Arg Thr Tyr Glu Pro Pro Ala Gly Phe Glu Gln
 420 425 430
 Ala Gln Arg Ser Arg Ile Ala Glu Thr Asp His Leu Ala Ala Asp Val
 435 440 445
 Leu Asn Gly Gly Trp Gln Glu Glu Thr Ala Ala Ile Ala Asp Asp Gly
 450 455 460

Ser Glu Gly Ala Ala Glu Arg Ser Ser Gly Gln Tyr Leu Ser Glu Thr
 465 470 475 480
 Glu Ala Phe Gly His Asp Ser Gln Ala Val Cys Pro Phe Glu Asp Val
 485 490 495
 Pro Ser Glu Arg Pro Ser Cys Arg Val Ser Asp Thr Glu Ala Asp Glu
 500 505 510
 Gly Ala Phe Gln Ser Glu Glu Thr Gly Ala Val Ser Glu His Leu Pro
 515 520 525
 Thr Thr Asp Leu Leu Leu Pro Pro Leu Phe Asn Pro Glu Ala Thr Gln
 530 535 540
 Thr Glu Glu Glu Leu Leu Glu Asn Ser Ile Thr Ile Glu Glu Lys Leu
 545 550 555 560
 Ala Glu Phe Lys Val Lys Val Lys Val Val Asp Ser Tyr Ser Gly Pro
 565 570 575
 Val Ile Thr Arg Tyr Glu Ile Glu Pro Asp Val Gly Val Arg Gly Asn
 580 585 590
 Ser Val Leu Asn Leu Glu Lys Asp Leu Ala Arg Ser Leu Gly Val Ala
 595 600 605
 Ser Ile Arg Val Val Glu Thr Ile Pro Gly Lys Thr Cys Met Gly Leu
 610 615 620
 Glu Leu Pro Asn Pro Lys Arg Gln Met Ile Arg Leu Ser Glu Ile Phe
 625 630 635 640
 Asn Ser Pro Glu Phe Ala Glu Ser Lys Ser Lys Leu Thr Leu Ala Leu
 645 650 655
 Gly Gln Asp Ile Thr Gly Gln Pro Val Val Thr Asp Leu Gly Lys Ala
 660 665 670
 Pro His Leu Leu Val Ala Gly Thr Thr Gly Ser Gly Lys Ser Val Gly
 675 680 685
 Val Asn Ala Met Ile Leu Ser Met Leu Phe Lys Ala Ala Pro Glu Asp
 690 695 700
 Val Arg Met Ile Met Ile Asp Pro Lys Met Leu Glu Leu Ser Ile Tyr
 705 710 715 720
 Glu Gly Ile Thr His Leu Leu Ala Pro Val Val Thr Asp Met Lys Leu
 725 730 735
 Ala Ala Asn Ala Leu Asn Trp Cys Val Asn Glu Met Glu Lys Arg Tyr
 740 745 750
 Arg Leu Met Ser Phe Met Gly Val Arg Asn Leu Ala Gly Phe Asn Gln
 755 760 765

Lys Ile Ala Glu Ala Ala Ala Arg Gly Glu Lys Ile Gly Asn Pro Phe
 770 775 780
 Ser Leu Thr Pro Asp Asp Pro Glu Pro Leu Glu Lys Leu Pro Phe Ile
 785 790 795 800
 Val Val Val Val Asp Glu Phe Ala Asp Leu Met Met Thr Ala Gly Lys
 805 810 815
 Lys Ile Glu Glu Leu Ile Ala Arg Leu Ala Gln Lys Ala Arg Ala Ala
 820 825 830
 Gly Ile His Leu Ile Leu Ala Thr Gln Arg Pro Ser Val Asp Val Ile
 835 840 845
 Thr Gly Leu Ile Lys Ala Asn Ile Pro Thr Arg Ile Ala Phe Gln Val
 850 855 860
 Ser Ser Lys Ile Asp Ser Arg Thr Ile Leu Asp Gln Met Gly Ala Glu
 865 870 875 880
 Asn Leu Leu Gly Gln Gly Asp Met Leu Phe Leu Pro Pro Gly Thr Ala
 885 890 895
 Tyr Pro Gln Arg Val His Gly Ala Phe Ala Ser Asp Glu Glu Val His
 900 905 910
 Arg Val Val Glu Tyr Leu Lys Gln Phe Gly Glu Pro Asp Tyr Val Asp
 915 920 925
 Asp Ile Leu Ser Gly Gly Gly Ser Glu Glu Leu Pro Gly Ile Gly Arg
 930 935 940
 Ser Gly Asp Gly Glu Thr Asp Pro Met Tyr Asp Glu Ala Val Ser Val
 945 950 955 960
 Val Leu Lys Thr Arg Lys Ala Ser Ile Ser Gly Val Gln Arg Ala Leu
 965 970 975
 Arg Ile Gly Tyr Asn Arg Ala Ala Arg Leu Ile Asp Gln Met Glu Ala
 980 985 990
 Glu Gly Ile Val Ser Ala Pro Glu His Asn Gly Asn Arg Thr Ile Leu
 995 1000 1005
 Val Pro Leu Asp Asn Ala
 1010

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 <211> 382
 <212> DNA
 <213> Neisseria meningitidis

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gggcgtgatc gccatcgatg ccgtgttggc attggtcggc ttctgggtca ttgccatcgg	180
tttgttttta atttaccaaa acgggctgac cctgcttttt gaagccgtgg aagacggcaa	240
aatccatttt tggctcggac tgctgcctat gcacattatc atgtttgtcc ttgcactcat	300
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gacattgaaa ggcggaataat ga	382

<210> 498
 <211> 127
 <212> PRT
 <213> Neisseria meningitidis

<220>
 <221> misc_feature
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 <223> Xaa= any amino acid

<400> 498
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 Asn Leu Leu Gly Arg Ala Ala Asp Gly Xaa Val Ile Ala Ile Asp Ala
 35 40 45
 Val Leu Ala Leu Val Gly Phe Trp Val Ile Ala Ile Gly Leu Phe Leu
 50 55 60
 Ile Tyr Gln Asn Gly Leu Thr Leu Leu Phe Glu Ala Val Glu Asp Gly
 65 70 75 80
 Lys Ile His Phe Trp Leu Gly Leu Leu Pro Met His Ile Ile Met Phe
 85 90 95
 Val Leu Ala Leu Ile Leu Leu Arg Val Arg Ser Met Pro Ser Gln Pro
 100 105 110
 Phe Trp Gln Ala Val Gly Lys Ser Leu Thr Leu Lys Gly Gly Lys
 115 120 125

<210> 499
 <211> 1116
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 <213> Neisseria meningitidis

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gggcgtgtcg ccatcgatgc cgtgttggca ttggtcggct tctgggtcat cggtatgacg	180
ccgcttttgc tgggtgttgac cgcatttata agtacgttga ccgtgttgac ccgctactgg	240
cgcgacagcg aaatgtcggg ctggctatcc tgccgattgg cattgaaaca atggatacgc	300
ccggtgatgc agtttgccgt gccgtttgcc gttttgggtg ccgtcatgca gctttgggtg	360
ataccgtggg cagagctacg cagccgcgaa tacgctgaaa tcctgaagca gaagcaggaa	420
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tgcttgcttg	ccgtgccgct	ttcctatttc	aaccgcgcga	gcggacatac	ctacaatatc	900
ttgattgcc	tcggtttgtt	tttaattttac	caaaacgggc	tgaccctgct	ttttgaagcc	960
gtggaagacg	gcaaaatcca	tttttggctc	ggactgctgc	ctatgcacat	tatcatgttt	1020
gccgttgcac	tcatoctgtt	gcgcgtccgc	agtatgccca	gccagccctt	ctggcaggcg	1080
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 <211> 371
 <212> PRT
 <213> Neisseria meningitidis

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 Asn Leu Leu Gly Arg Ala Ala Asp Gly Arg Val Ala Ile Asp Ala Val
 35 40 45
 Leu Ala Leu Val Gly Phe Trp Val Ile Gly Met Thr Pro Leu Leu Leu
 50 55 60
 Val Leu Thr Ala Phe Ile Ser Thr Leu Thr Val Leu Thr Arg Tyr Trp
 65 70 75 80
 Arg Asp Ser Glu Met Ser Val Trp Leu Ser Cys Gly Leu Ala Leu Lys
 85 90 95
 Gln Trp Ile Arg Pro Val Met Gln Phe Ala Val Pro Phe Ala Val Leu
 100 105 110
 Val Ala Val Met Gln Leu Trp Val Ile Pro Trp Ala Glu Leu Arg Ser
 115 120 125
 Arg Glu Tyr Ala Glu Ile Leu Lys Gln Lys Gln Glu Leu Ser Leu Val
 130 135 140
 Glu Ala Gly Glu Phe Asn Ser Leu Gly Lys Arg Asn Gly Arg Val Tyr
 145 150 155 160
 Phe Val Glu Thr Phe Asp Thr Glu Ser Gly Ile Met Lys Asn Leu Phe
 165 170 175
 Leu Arg Glu Gln Asp Lys Asn Gly Gly Asp Asn Ile Ile Phe Ala Lys
 180 185 190
 Glu Gly Asn Phe Ser Leu Asn Asp Asn Lys Arg Thr Leu Glu Leu Arg
 195 200 205

His Gly Tyr Arg Tyr Ser Gly Thr Pro Gly Arg Ala Asp Tyr Asn Gln
 210 215 220
 Val Ser Phe Gln Lys Leu Asn Leu Ile Ile Ser Thr Thr Pro Lys Leu
 225 230 235 240
 Ile Asp Pro Val Ser His Arg Arg Thr Ile Pro Thr Ala Gln Leu Ile
 245 250 255
 Gly Ser Ser Asn Pro Gln His Gln Ala Glu Leu Met Trp Arg Ile Ser
 260 265 270
 Leu Thr Val Ser Val Leu Leu Leu Cys Leu Leu Ala Val Pro Leu Ser
 275 280 285
 Tyr Phe Asn Pro Arg Ser Gly His Thr Tyr Asn Ile Leu Ile Ala Ile
 290 295 300
 Gly Leu Phe Leu Ile Tyr Gln Asn Gly Leu Thr Leu Leu Phe Glu Ala
 305 310 315 320
 Val Glu Asp Gly Lys Ile His Phe Trp Leu Gly Leu Leu Pro Met His
 325 330 335
 Ile Ile Met Phe Ala Val Ala Leu Ile Leu Leu Arg Val Arg Ser Met
 340 345 350
 Pro Ser Gln Pro Phe Trp Gln Ala Val Gly Lys Ser Leu Thr Leu Lys
 355 360 365
 Gly Gly Lys
 370

<210> 501
 <211> 1116
 <212> DNA
 <213> Neisseria meningitidis

<220>
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 <222> (110)..(110)
 <223> N= Unknown

<220>
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 <222> (121)..(121)
 <223> N= Unknown

<220>
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 <222> (127)..(127)
 <223> N= Unknown

<220>
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<223> N= Unknown

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<222> (192)..(192)

<223> N= Unknown

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<222> (243)..(243)

<223> N= Unknown

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<222> (265)..(265)

<223> N= Unknown

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<222> (571)..(571)

<223> N= Unknown

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<222> (683)..(683)

<223> N= Unknown

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<222> (753)..(753)

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<222> (756)..(756)

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<222> (792)..(792)

<223> N= Unknown

<220>

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<222> (905)..(905)

<223> N= Unknown

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<400> 501
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nggcgtntcg ccatcgatgc cgtgttggca ttggtcggct tctgggtcnn nngnatgacg 180
ccgcttttgc tngtgttgac cgcattttatc agtacgttga ccgtgttgac ccgctactgg 240
cngnacagcg aaatgtcggg ctggntatcc tgcggattgg cattgaaaca atggatacgc 300
ccggtgatgc agtttgccgt gccgtttgcc gttttggttg ccgtcatgca gctttgggtg 360
ataccgtggg cagagctacg cagccgcgaa tacgctgaaa tcctgaagca gaagcaggaa 420
ttgtctttgg tggaggcagg cgggttcaac agtttgggca agcgcaacgg cagggtttat 480
tttgtcgaac ctttcgatac cgaatccggc atcatgaaaa acctgttcct gcgcgaacag 540
gacaaaaacg gcggcgacaa catcatcttc nccaaagaaa gtaacttctc gctgaacgac 600
aacaacgca cgctcgaatt gcgccacggc taccgttaca gcggcacgcc cggacgcgcc 660
gactacaatc aggttttcct ccnaaaactc aacctgatta tcagcaccac gcccaaactc 720
atcgaccccg tttcccaccg ccgtacnatin ccnacngccc aactgattgg cagcagcaac 780
ccgcaacatc ancggaatt gatgtggcgc atctcgctga ccgtcagcgt cctcctactc 840
tgcttgcttg ccgtgccgt ttctatttcc aaccgcgcga gcggacatac ctacaatatc 900
ttgantgcca tcggtttggt tttaatctac caaaacgggc tgacctgct ttttgaagcc 960
gtggaagacg gcaaaatcca tttttggctc ggactgctgc ctatgcacat catcatgttc 1020
gtcatcgcaa tcgtacttct gcgcgtccgc agcatgcca gccagccctt ctggcaggcg 1080
gttggaacaa gtctgacatt gaaaggcgga aaatga 1116

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<210> 502
<211> 371
<212> PRT
<213> Neisseria meningitidis

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<220>
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<222> (37)..(37)
<223> Xaa= any amino acid

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<220>
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<222> (41)..(41)
<223> Xaa= any amino acid

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<220>
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<222> (43)..(43)
<223> Xaa= any amino acid

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<220>
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<222> (57)..(58)
<223> Xaa= any amino acid

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<220>
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<222> (89)..(89)
<223> Xaa= any amino acid

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<220>
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<222> (191)..(191)
<223> Xaa= any amino acid

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<220>
<221> misc_feature
<222> (228)..(228)
<223> Xaa= any amino acid

<220>
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<222> (250)..(250)
<223> Xaa= any amino acid

<220>
<221> misc_feature
<222> (264)..(264)
<223> Xaa= any amino acid

<220>
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<222> (302)..(302)
<223> Xaa= any amino acid

<400> 502
Met Ile Tyr Gln Arg Asn Leu Ile Lys Glu Leu Ser Phe Thr Ala Val
1 5 10 15
Gly Ile Phe Val Val Leu Leu Ala Val Leu Val Ser Thr Gln Ala Ile
20 25 30
Asn Leu Leu Gly Xaa Ala Ala Asp Xaa Arg Xaa Ala Ile Asp Ala Val
35 40 45
Leu Ala Leu Val Gly Phe Trp Val Xaa Xaa Met Thr Pro Leu Leu Leu
50 55 60
Val Leu Thr Ala Phe Ile Ser Thr Leu Thr Val Leu Thr Arg Tyr Trp
65 70 75 80
Arg Asp Ser Glu Met Ser Val Trp Xaa Ser Cys Gly Leu Ala Leu Lys
85 90 95
Gln Trp Ile Arg Pro Val Met Gln Phe Ala Val Pro Phe Ala Val Leu
100 105 110
Val Ala Val Met Gln Leu Trp Val Ile Pro Trp Ala Glu Leu Arg Ser
115 120 125
Arg Glu Tyr Ala Glu Ile Leu Lys Gln Lys Gln Glu Leu Ser Leu Val
130 135 140
Glu Ala Gly Gly Phe Asn Ser Leu Gly Lys Arg Asn Gly Arg Val Tyr
145 150 155 160
Phe Val Glu Thr Phe Asp Thr Glu Ser Gly Ile Met Lys Asn Leu Phe
165 170 175
Leu Arg Glu Gln Asp Lys Asn Gly Gly Asp Asn Ile Ile Phe Xaa Lys
180 185 190

Glu Ser Asn Phe Ser Leu Asn Asp Asn Lys Arg Thr Leu Glu Leu Arg
 195 200 205
 His Gly Tyr Arg Tyr Ser Gly Thr Pro Gly Arg Ala Asp Tyr Asn Gln
 210 215 220
 Val Ser Phe Xaa Lys Leu Asn Leu Ile Ile Ser Thr Thr Pro Lys Leu
 225 230 235 240
 Ile Asp Pro Val Ser His Arg Arg Thr Xaa Pro Thr Ala Gln Leu Ile
 245 250 255
 Gly Ser Ser Asn Pro Gln His Xaa Ala Glu Leu Met Trp Arg Ile Ser
 260 265 270
 Leu Thr Val Ser Val Leu Leu Leu Cys Leu Leu Ala Val Pro Leu Ser
 275 280 285
 Tyr Phe Asn Pro Arg Ser Gly His Thr Tyr Asn Ile Leu Xaa Ala Ile
 290 295 300
 Gly Leu Phe Leu Ile Tyr Gln Asn Gly Leu Thr Leu Leu Phe Glu Ala
 305 310 315 320
 Val Glu Asp Gly Lys Ile His Phe Trp Leu Gly Leu Leu Pro Met His
 325 330 335
 Ile Ile Met Phe Val Ile Ala Ile Val Leu Leu Arg Val Arg Ser Met
 340 345 350
 Pro Ser Gln Pro Phe Trp Gln Ala Val Gly Lys Ser Leu Thr Leu Lys
 355 360 365
 Gly Gly Lys
 370

<210> 503
 <211> 8
 <212> PRT
 <213> *Neisseria meningitidis*

<400> 503
 Asn Asn Asn Asn Asn Asn Asn Asn
 1 5

<210> 504
 <211> 362
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 504
 Met Ile Tyr Gln Arg Asn Leu Ile Lys Glu Leu Ser Phe Thr Ala Val
 1 5 10 15

Gly Ile Phe Val Val Leu Leu Ala Val Leu Val Ser Thr Gln Ala Ile
 20 25 30

Asn	Leu	Leu	Gly	Arg	Ala	Ala	Asp	Gly	Arg	Val	Ala	Ile	Asp	Ala	Val
		35					40					45			
Leu	Ala	Leu	Val	Gly	Phe	Trp	Val	Ile	Gly	Met	Thr	Pro	Leu	Leu	Leu
	50					55					60				
Val	Leu	Thr	Ala	Phe	Ile	Ser	Thr	Leu	Thr	Val	Leu	Thr	Arg	Tyr	Trp
65					70					75					80
Arg	Asp	Ser	Glu	Met	Ser	Val	Trp	Leu	Ser	Cys	Gly	Leu	Ala	Leu	Lys
				85					90					95	
Gln	Trp	Ile	Arg	Pro	Val	Met	Gln	Phe	Ala	Val	Pro	Phe	Ala	Ile	Leu
			100					105					110		
Ile	Ala	Val	Met	Gln	Leu	Trp	Val	Ile	Pro	Trp	Ala	Glu	Leu	Arg	Ser
		115					120					125			
Arg	Glu	Tyr	Ala	Glu	Ile	Leu	Lys	Gln	Lys	Gln	Glu	Leu	Ser	Leu	Val
	130					135					140				
Glu	Ala	Gly	Glu	Phe	Asn	Asn	Leu	Gly	Lys	Arg	Asn	Gly	Arg	Val	Tyr
145					150					155					160
Phe	Val	Glu	Thr	Phe	Asp	Thr	Glu	Ser	Gly	Ile	Met	Lys	Asn	Leu	Phe
				165					170					175	
Leu	Arg	Glu	Gln	Asp	Lys	Asn	Gly	Gly	Asp	Asn	Ile	Ile	Phe	Ala	Lys
			180					185					190		
Glu	Gly	Asn	Phe	Ser	Leu	Lys	Asp	Asn	Lys	Arg	Thr	Leu	Glu	Leu	Arg
		195					200					205			
His	Gly	Tyr	Arg	Tyr	Ser	Gly	Thr	Pro	Gly	Arg	Ala	Asp	Tyr	Asn	Gln
	210					215					220				
Val	Ser	Phe	Gln	Lys	Leu	Asn	Leu	Ile	Ile	Ser	Thr	Thr	Pro	Lys	Leu
225					230					235					240
Ile	Asp	Pro	Val	Ser	His	Arg	Arg	Thr	Ile	Ser	Thr	Ala	Gln	Leu	Ile
				245					250					255	
Gly	Ser	Ser	Asn	Pro	Gln	His	Gln	Ala	Glu	Leu	Met	Trp	Arg	Ile	Ser
			260					265					270		
Leu	Thr	Val	Ser	Val	Leu	Leu	Leu	Cys	Leu	Leu	Ala	Val	Pro	Leu	Ser
		275					280					285			
Tyr	Phe	Asn	Pro	Arg	Ser	Gly	His	Thr	Tyr	Asn	Ile	Leu	Ile	Ala	Ile
	290					295					300				
Gly	Leu	Phe	Leu	Ile	Tyr	Gln	Asn	Gly	Leu	Thr	Leu	Leu	Phe	Glu	Ala
305					310					315					320
Val	Glu	Asp	Gly	Lys	Ile	His	Phe	Trp	Leu	Gly	Leu	Leu	Pro	Met	His
				325					330					335	

Ile Ile Met Phe Val Ile Ala Ile Val Leu Leu Arg Val Arg Ser Met
 340 345 350

Pro Ser Gln Pro Phe Trp Gln Ala Val Gly
 355 360

<210> 505
 <211> 1116
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 505
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 gtccctcttg cgggtgttgg gtccacgcag gcgatcaacc tgcttggccg cgcagctgac 120
 gggcgtgtcg ccatcgatgc cgtgttggcc ttagtcggct tctgggtcat cggatatgac 180
 ccgcttttgc tgggtgtgac cgcattcatc agcacgctga ccgtattgac ccgctactgg 240
 cgcgacagcg aaatgtcggg ctggctatcc tgcggattgg cgttgaaaca gtggatacgc 300
 cccgtcatgc agtttgcggt gccgtttgccc atcctgattg ccgtcatgca gctttgggtg 360
 ataccgtggg cagagctgcg cagccgcgaa tatgccgaaa ttttgaagca gaagcaggaa 420
 ttgtctttgg tgggaagccg cgagttcaat aacttgggca agcgcaacgg cagggtttat 480
 ttcgtcga aa cctttgacac cgaatccggc atcatgaaaa acctgttcct gcgcgaacag 540
 gacaaaaacg gcggcgacaa catcatcttc gccaaagaag gtaacttctc gctgaaggac 600
 aacaaacgca cgctcgaatt gcgccacggc taccgttaca gcggcacgcc cggacgcgcc 660
 gactacaatc aggtttcctt ccaaaaactc aacctgatta tcagcaccac gcccaaactt 720
 atcgaccccg tttcccaccg ccgcaccatt tcgaccgcc aactgattgg cagcagcaat 780
 ccgcaacatc aggcagaatt gatgtggcgc atctcgtgga ccgtcagcgt cctcctgctc 840
 tgccactcgc ccgtgccgct ttcctatttc aaccgcgcga gcggacatac ctacaatatc 900
 ttgattgcca tcggtttggg ttttaatttc caaaacgggc tgaccctgct ttttgaagcc 960
 gtggaagacg gcaaaatcca tttttggctc ggactgctgc ctatgcacat catcatgttc 1020
 gtcacgcaa tcgtacttct gcgcgtccgc agtatgcca gccagccctt ctggcaggcg 1080
 gttggcaaaa gtctgacatt gaaaggcgga aaatga 1116

<210> 506
 <211> 371
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 506
 Met Ile Tyr Gln Arg Asn Leu Ile Lys Glu Leu Ser Phe Thr Ala Val
 1 5 10 15
 Gly Ile Phe Val Val Leu Leu Ala Val Leu Val Ser Thr Gln Ala Ile
 20 25 30
 Asn Leu Leu Gly Arg Ala Ala Asp Gly Arg Val Ala Ile Asp Ala Val
 35 40 45
 Leu Ala Leu Val Gly Phe Trp Val Ile Gly Met Thr Pro Leu Leu Leu
 50 55 60
 Val Leu Thr Ala Phe Ile Ser Thr Leu Thr Val Leu Thr Arg Tyr Trp
 65 70 75 80
 Arg Asp Ser Glu Met Ser Val Trp Leu Ser Cys Gly Leu Ala Leu Lys
 85 90 95

Gln Trp Ile Arg Pro Val Met Gln Phe Ala Val Pro Phe Ala Ile Leu
 100 105 110
 Ile Ala Val Met Gln Leu Trp Val Ile Pro Trp Ala Glu Leu Arg Ser
 115 120 125
 Arg Glu Tyr Ala Glu Ile Leu Lys Gln Lys Gln Glu Leu Ser Leu Val
 130 135 140
 Glu Ala Gly Glu Phe Asn Asn Leu Gly Lys Arg Asn Gly Arg Val Tyr
 145 150 155 160
 Phe Val Glu Thr Phe Asp Thr Glu Ser Gly Ile Met Lys Asn Leu Phe
 165 170 175
 Leu Arg Glu Gln Asp Lys Asn Gly Gly Asp Asn Ile Ile Phe Ala Lys
 180 185 190
 Glu Gly Asn Phe Ser Leu Lys Asp Asn Lys Arg Thr Leu Glu Leu Arg
 195 200 205
 His Gly Tyr Arg Tyr Ser Gly Thr Pro Gly Arg Ala Asp Tyr Asn Gln
 210 215 220
 Val Ser Phe Gln Lys Leu Asn Leu Ile Ile Ser Thr Thr Pro Lys Leu
 225 230 235 240
 Ile Asp Pro Val Ser His Arg Arg Thr Ile Ser Thr Ala Gln Leu Ile
 245 250 255
 Gly Ser Ser Asn Pro Gln His Gln Ala Glu Leu Met Trp Arg Ile Ser
 260 265 270
 Leu Thr Val Ser Val Leu Leu Leu Cys Leu Leu Ala Val Pro Leu Ser
 275 280 285
 Tyr Phe Asn Pro Arg Ser Gly His Thr Tyr Asn Ile Leu Ile Ala Ile
 290 295 300
 Gly Leu Phe Leu Ile Tyr Gln Asn Gly Leu Thr Leu Leu Phe Glu Ala
 305 310 315 320
 Val Glu Asp Gly Lys Ile His Phe Trp Leu Gly Leu Leu Pro Met His
 325 330 335
 Ile Ile Met Phe Val Ile Ala Ile Val Leu Leu Arg Val Arg Ser Met
 340 345 350
 Pro Ser Gln Pro Phe Trp Gln Ala Val Gly Lys Ser Leu Thr Leu Lys
 355 360 365
 Gly Gly Lys
 370

<210> 507

<211> 407

<212> DNA
<213> *Neisseria meningitidis*

<400> 507
ggtggtggtt ttatcaatgc ttcctgtgcc actttgacga cagccaaacc gcaatatcaa 60
gcaggagacc ttagcgcttt taagataagg caaggcaatg ttgtaatcgc cggacacggt 120
ttggatgcac gtgataccga ttacacacgt attctcagtt atcattccaa aatcgatgca 180
cccgtatggg gacaagatgt tcgtgtcgtc gcgggacaaa acgatgtggc cgcaacaggt 240
gatgcacatt cgcctattct caataatgct gctgccaata cgtcaaacia tacagccaac 300
aacggcacac atatcccttt atttgcgatt gatacaggca aattaggagg tatgtatgcc 360
aacaaaaatca ccttgatcag tacggtcgag caagcaggca ttcgtaa 407

<210> 508
<211> 135
<212> PRT
<213> *Neisseria meningitidis*

<220>
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<222> (118)..(118)
<223> Xaa= any amino acid

<400> 508
Gly Gly Gly Phe Ile Asn Ala Ser Cys Ala Thr Leu Thr Thr Ala Lys
1 5 10 15
Pro Gln Tyr Gln Ala Gly Asp Leu Ser Ala Phe Lys Ile Arg Gln Gly
20 25 30
Asn Val Val Ile Ala Gly His Gly Leu Asp Ala Arg Asp Thr Asp Tyr
35 40 45
Thr Arg Ile Leu Ser Tyr His Ser Lys Ile Asp Ala Pro Val Trp Gly
50 55 60
Gln Asp Val Arg Val Val Ala Gly Gln Asn Asp Val Ala Ala Thr Gly
65 70 75 80
Asp Ala His Ser Pro Ile Leu Asn Asn Ala Ala Ala Asn Thr Ser Asn
85 90 95
Asn Thr Ala Asn Asn Gly Thr His Ile Pro Leu Phe Ala Ile Asp Thr
100 105 110
Gly Lys Leu Gly Gly Xaa Val Cys Gln Gln Asn His Leu Asp Gln Tyr
115 120 125
Gly Arg Ala Ser Arg His Ser
130 135

<210> 509
<211> 8
<212> DNA
<213> *Neisseria gonorrhoeae*

<220>

<221> misc_feature
<222> (1)..(8)
<223> N= Unknown

<400> 509
nnnnnnnnn

8

<210> 510
<211> 263
<212> PRT
<213> Neisseria gonorrhoeae

<400> 510
Met Asn Lys Thr Leu Tyr Arg Val Ile Phe Asn Arg Lys Arg Gly Ala
1 5 10 15
Val Val Ala Val Ala Glu Thr Thr Lys Arg Glu Gly Lys Ser Cys Ala
20 25 30
Asp Ser Gly Ser Gly Ser Val Tyr Val Lys Ser Val Ser Phe Ile Pro
35 40 45
Thr His Ser Lys Ala Phe Cys Phe Ser Ala Leu Gly Phe Ser Leu Cys
50 55 60
Leu Ala Leu Gly Thr Val Asn Ile Ala Phe Ala Asp Gly Ile Ile Thr
65 70 75 80
Asp Lys Ala Ala Pro Lys Thr Gln Gln Ala Thr Ile Leu Gln Thr Gly
85 90 95
Asn Gly Ile Pro Gln Val Asn Ile Gln Thr Pro Thr Ser Ala Gly Val
100 105 110
Ser Val Asn Gln Tyr Ala Gln Phe Asp Val Gly Asn Arg Gly Ala Ile
115 120 125
Leu Asn Asn Ser Arg Ser Asn Thr Gln Thr Gln Leu Gly Gly Trp Ile
130 135 140
Gln Gly Asn Pro Trp Leu Thr Arg Gly Glu Ala Arg Val Val Val Asn
145 150 155 160
Gln Ile Asn Ser Ser His Pro Ser Gln Leu Asn Gly Tyr Ile Glu Val
165 170 175
Gly Gly Arg Arg Ala Glu Val Val Ile Ala Asn Pro Ala Gly Ile Ala
180 185 190
Val Asn Gly Gly Gly Phe Ile Asn Ala Ser Arg Ala Thr Leu Thr Thr
195 200 205
Gly Gln Pro Gln Tyr Gln Ala Gly Asp Phe Ser Gly Phe Lys Ile Arg
210 215 220
Gln Gly Asn Ala Val Ile Ala Gly His Gly Leu Asp Ala Arg Asp Thr

Met Leu Asp Ser Leu Lys Leu Asp Pro Asn Asn Leu His Lys Arg Leu
 100 105 110
 Gly Asp Gly Tyr Tyr Glu Gln Arg Leu Ile Asn Glu Gln Ile Ala Glu
 115 120 125
 Leu Thr Gly His Arg Arg Leu Asp Gly Tyr Gln Asn Asp Glu Glu Gln
 130 135 140
 Phe Lys Ala Leu Met Asp Asn Gly Ala Thr Ala Ala Arg Ser Met Asn
 145 150 155 160
 Leu Ser Val Gly Ile Ala Leu Ser Ala Glu Gln Val Ala Gln Leu Thr
 165 170 175
 Ser Asp Ile Val Trp Leu Val Gln Lys Glu Val Lys Leu Pro Asp Gly
 180 185 190
 Gly Thr Gln Thr Val Leu Val Pro Gln Val Tyr Val Arg Val Lys Asn
 195 200 205
 Gly Asp Ile Asp Gly Lys Gly Ala Leu Leu Ser Gly Ser Asn Thr Gln
 210 215 220
 Ile Asn Val Ser Gly Ser Leu Lys Asn Ser Gly Thr Ile Ala Gly Arg
 225 230 235 240
 Asn Ala Leu Ile Ile Asn Thr Asp Thr Leu Asp Asn Ile Gly Gly Arg
 245 250 255
 Ile His Ala Gln Lys Ser Ala Val Thr Ala Thr Gln Asp Ile Asn Asn
 260 265 270
 Ile Gly Gly Met Leu Ser Ala Glu Gln Thr Leu Leu Leu Asn Ala Gly
 275 280 285
 Asn Asn Ile Asn Ser Gln Ser Thr Thr Ala Ser Ser Gln Asn Thr Gln
 290 295 300
 Gly Ser Ser Thr Tyr Leu Asp Arg Met Ala Gly Ile Tyr Ile Thr Gly
 305 310 315 320
 Lys Glu Lys Gly Val
 325

<210> 513
 <211> 8
 <212> DNA
 <213> *Neisseria gonorrhoeae*

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 513

nnnnnnnnn

8

<210> 514

<211> 721

<212> PRT

<213> Neisseria gonorrhoeae

<400> 514

Met Leu Val Gln Thr Glu Lys Asp Gly Leu His Asn Glu Gln Thr Phe
1 5 10 15

Gly Glu Lys Lys Val Phe Ser Glu Asn Gly Lys Leu His Asn Tyr Trp
20 25 30

Arg Ala Arg Arg Lys Gly His Asp Glu Thr Gly His Arg Glu Gln Asn
35 40 45

Tyr Thr Leu Pro Glu Glu Ile Thr Arg Asp Ile Ser Leu Gly Ser Phe
50 55 60

Ala Tyr Glu Ser His Ser Lys Ala Leu Ser Arg His Ala Pro Ser Gln
65 70 75 80

Gly Thr Glu Leu Pro Gln Ser Asn Arg Asp Asn Ile Arg Thr Ala Lys
85 90 95

Ser Asn Gly Ile Ser Leu Pro Tyr Thr Pro Asn Ser Phe Thr Pro Leu
100 105 110

Pro Gly Ser Ser Leu Tyr Ile Ile Asn Pro Ala Asn Lys Gly Tyr Leu
115 120 125

Val Glu Thr Asp Pro Arg Phe Ala Asn Tyr Arg Gln Trp Leu Gly Ser
130 135 140

Asp Tyr Met Leu Gly Ser Leu Lys Leu Asp Pro Asn Asn Leu His Lys
145 150 155 160

Arg Leu Gly Asp Gly Tyr Tyr Glu Gln Arg Leu Ile Asn Glu Gln Ile
165 170 175

Ala Glu Leu Thr Gly His Arg Arg Leu Asp Gly Tyr Gln Asn Asp Glu
180 185 190

Glu Gln Phe Lys Ala Leu Met Asp Asn Gly Ala Thr Ala Ala Arg Ser
195 200 205

Met Asn Leu Ser Val Gly Ile Ala Leu Ser Ala Glu Gln Ala Ala Gln
210 215 220

Leu Thr Ser Asp Ile Val Trp Leu Val Gln Lys Glu Val Lys Leu Pro
225 230 235 240

Asp Gly Gly Thr Gln Thr Val Leu Met Pro Gln Val Tyr Val Arg Val
245 250 255

Lys Asn Gly Gly Ile Asp Gly Lys Gly Ala Leu Leu Ser Gly Ser Asn
 260 265 270
 Thr Gln Ile Asn Val Ser Gly Ser Leu Lys Asn Ser Gly Thr Ile Ala
 275 280 285
 Gly Arg Asn Ala Leu Ile Ile Asn Thr Asp Thr Leu Asp Asn Ile Gly
 290 295 300
 Gly Arg Ile His Ala Gln Lys Ser Ala Val Thr Ala Thr Gln Asp Ile
 305 310 315 320
 Asn Asn Ile Gly Gly Ile Leu Ser Ala Glu Gln Thr Leu Leu Leu Asn
 325 330 335
 Ala Gly Asn Asn Ile Asn Asn Gln Ser Thr Ala Lys Ser Ser Gln Asn
 340 345 350
 Ala Gln Gly Ser Ser Thr Tyr Leu Asp Arg Met Ala Gly Ile Tyr Ile
 355 360 365
 Thr Gly Lys Glu Lys Gly Val Leu Ala Ala Gln Ala Gly Lys Asp Ile
 370 375 380
 Asn Ile Ile Ala Gly Gln Ile Ser Asn Gln Ser Asp Gln Gly Gln Thr
 385 390 395 400
 Arg Leu Gln Ala Gly Arg Asp Ile Asn Leu Asp Thr Val Gln Thr Gly
 405 410 415
 Lys Tyr Gln Glu Ile His Phe Asp Ala Asp Asn His Thr Ile Arg Gly
 420 425 430
 Ser Thr Asn Glu Val Gly Ser Ser Ile Gln Thr Lys Gly Asp Val Thr
 435 440 445
 Leu Leu Ser Gly Asn Asn Leu Asn Ala Lys Ala Ala Glu Val Gly Ser
 450 455 460
 Ala Lys Gly Thr Leu Ala Val Tyr Ala Lys Asn Asp Ile Thr Ile Ser
 465 470 475 480
 Ser Gly Ile His Ala Gly Gln Val Asp Asp Ala Ser Lys His Thr Gly
 485 490 495
 Arg Ser Gly Gly Gly Asn Lys Leu Val Ile Thr Asp Lys Ala Gln Ser
 500 505 510
 His His Glu Thr Ala Gln Ser Ser Thr Phe Glu Gly Lys Gln Val Val
 515 520 525
 Leu Gln Ala Gly Asn Asp Ala Asn Ile Leu Gly Ser Asn Val Ile Ser
 530 535 540
 Asp Asn Gly Thr Arg Ile Gln Ala Gly Asn His Val Arg Ile Gly Thr
 545 550 555 560

Thr Gln Thr Gln Ser Gln Ser Glu Thr Tyr His Gln Thr Gln Lys Ser
 565 570 575
 Gly Leu Met Ser Ala Gly Ile Gly Phe Thr Ile Gly Ser Lys Thr Asn
 580 585 590
 Thr Gln Glu Asn Gln Ser Gln Ser Asn Glu His Thr Gly Ser Thr Val
 595 600 605
 Gly Ser Leu Lys Gly Asp Thr Thr Ile Val Ala Ser Lys His Tyr Glu
 610 615 620
 Gln Thr Gly Ser Asn Val Ser Ser Pro Glu Gly Asn Asn Leu Ile Ser
 625 630 635 640
 Thr Gln Ser Met Asp Ile Gly Ala Ala Gln Asn Gln Leu Asn Ser Lys
 645 650 655
 Thr Thr Gln Thr Tyr Glu Gln Lys Gly Leu Thr Val Ala Phe Ser Ser
 660 665 670
 Pro Val Thr Asp Leu Ala Gln Gln Ala Ile Ala Val Ala His Lys Ala
 675 680 685
 Ala Lys Gln Phe Asp Lys Ala Lys Thr Thr Ala Leu Met Pro Trp Arg
 690 695 700
 Leu Pro Met Gln Val Gly Arg Leu Phe Lys Gln Ala Lys Ala Pro Lys
 705 710 715 720

Lys

<210> 515
 <211> 2166
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 515
 ttgcttggtgc aaacagaaaa agacggtttg cataacgagc aaaccttttg cgagaagaaa 60
 gtcttcagcg aaaatggtaa gttgcacaac tactggcggtg cgcgtcgtaa aggacatgat 120
 gaaacagggc atcgtgaaca aaattatact ttgccggagg aaatcacacg cgacatttca 180
 ctgggttcat ttgcctatga atcgcatagc aaagcattaa gccgtcatgc gccagccaa 240
 ggcaactgagt tgccacaaaag taaccgggat aatatccgta ctgcgaaaag caacggtatt 300
 tcgctaccct atacgccccaa ttcttttacc ccattaccgg gcagcagctt atacattatc 360
 aatcctgcca ataaaggcta tcttggttgaa accgatccac gctttgcca ctaccgtcaa 420
 tgggtgggta gtgactatat gctgggcagc ctcaaactag acccaaaca tttacataaa 480
 cgtttggttg atggttatta cgagcaacgt ttaatcaatg aacaaatcgc agagctgaca 540
 gggcatcgtc gtttagacgg ttatcaaaac gacgaagaac aattttaaagc cttaatggat 600
 aatggcgcgca ctgcggcacg ttcgatgaat ctcagcggtg gcattgcatt aagtgccgag 660
 caagcagcgc aactgaccag cgatattgtt tgggttggtac aaaaagaagt taaacttcct 720
 gatggcgcca cacaaccgt attgatgcca caggtttatg tacgcgttaa aaatggcggc 780
 atagacggta aagggtgcatt gttgtcaggc agcaatacac aaatcaatgt ttcaggcagc 840
 ctgaaaaact caggcacgat tgcaggcgcg aatgcgctta ttatcaatac cgatacgcta 900
 gacaatatcg gtgggcgtat tcatgcgcaa aaatcagcgg ttacggccac acaagacatc 960
 aataatattg gcggcattct ttctgccgaa cagacattat tgctcaatgc gggttaacaac 1020

atcaacaacc	aaagcacggc	caagagcagt	caaaatgcac	aaggtagcag	cacctaccta	1080
gaccgaatgg	caggtattta	tatcacaggc	aaagaaaaag	gtgttttagc	agcgcaggca	1140
ggcaaagaca	tcaacatcat	tgccggtcaa	atcagcáatc	aatcagatca	agggcaaacc	1200
cggctgcagg	caggacgcga	cattaacctg	gatacggtag	aaaccggcaa	atatcaagaa	1260
atccattttg	atgccgataa	ccataccatc	cgagggttcaa	cgaacgaagt	cggcagcagc	1320
attcaaacaa	aaggcgatgt	taccctattg	tcagggaata	atctcaatgc	caaagctgcc	1380
gaagtcggca	gcgcaaaagg	cacacttgcc	gtgtatgcta	aaaatgacat	tactatcagc	1440
tcaggcatcc	atgccggcca	agttgatgat	gcgtccaaac	atacaggcag	aagcggcggc	1500
ggtaataaat	tagtcattac	cgataaagcc	caaagtcac	acgaaactgc	tcaaagcagc	1560
acctttgaag	gcaagcaagt	tgtattgcag	gcaggaaacg	atgccaacat	ccttggcagt	1620
aatggtattt	ccgataatgg	cacccggatt	caagcaggca	atcatgttcg	cattggtaca	1680
acccaaactc	aaagccaaaag	cgaaacctat	catcaaacc	aaaaatcagg	attgatgagt	1740
gcagggtatcg	gcttcactat	tggcagcaag	acaaacacac	aagaaaacca	atcccaaagc	1800
aacgaacata	caggcagtac	cgtaggcagc	ctgaaaggcg	ataccaccat	tgttgcaagc	1860
aaacactacg	aacaaaccgg	cagcaacgtt	tccagccctg	agggcaacaa	ccttatcagc	1920
acgcaaagta	tggatattgg	cgcagcacia	aaccaattaa	acagcaaaac	cacccaaacc	1980
tacgaacaaa	aaggcttaac	ggtggcattc	agttcgcccg	ttaccgattt	ggcacaacaa	2040
gcgattgccg	tagcacacaa	agcagcaaac	aagtcggaca	aagcaaaaac	gaccgcgtta	2100
atgccatggc	ggctgccaat	gcaggttggc	aggcctatca	aacaggcaaa	ggcgcacaaa	2160
acttag						2166

<210> 516
 <211> 721
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 516
 Leu Leu Val Gln Thr Glu Lys Asp Gly Leu His Asn Glu Gln Thr Phe
 1 5 10 15
 Gly Glu Lys Lys Val Phe Ser Glu Asn Gly Lys Leu His Asn Tyr Trp
 20 25 30
 Arg Ala Arg Arg Lys Gly His Asp Glu Thr Gly His Arg Glu Gln Asn
 35 40 45
 Tyr Thr Leu Pro Glu Glu Ile Thr Arg Asp Ile Ser Leu Gly Ser Phe
 50 55 60
 Ala Tyr Glu Ser His Ser Lys Ala Leu Ser Arg His Ala Pro Ser Gln
 65 70 75 80
 Gly Thr Glu Leu Pro Gln Ser Asn Arg Asp Asn Ile Arg Thr Ala Lys
 85 90 95
 Ser Asn Gly Ile Ser Leu Pro Tyr Thr Pro Asn Ser Phe Thr Pro Leu
 100 105 110
 Pro Gly Ser Ser Leu Tyr Ile Ile Asn Pro Ala Asn Lys Gly Tyr Leu
 115 120 125
 Val Glu Thr Asp Pro Arg Phe Ala Asn Tyr Arg Gln Trp Leu Gly Ser
 130 135 140
 Asp Tyr Met Leu Gly Ser Leu Lys Leu Asp Pro Asn Asn Leu His Lys
 145 150 155 160

Arg	Leu	Gly	Asp	Gly	Tyr	Tyr	Glu	Gln	Arg	Leu	Ile	Asn	Glu	Gln	Ile	165	170	175
Ala	Glu	Leu	Thr	Gly	His	Arg	Arg	Leu	Asp	Gly	Tyr	Gln	Asn	Asp	Glu	180	185	190
Glu	Gln	Phe	Lys	Ala	Leu	Met	Asp	Asn	Gly	Ala	Thr	Ala	Ala	Arg	Ser	195	200	205
Met	Asn	Leu	Ser	Val	Gly	Ile	Ala	Leu	Ser	Ala	Glu	Gln	Ala	Ala	Gln	210	215	220
Leu	Thr	Ser	Asp	Ile	Val	Trp	Leu	Val	Gln	Lys	Glu	Val	Lys	Leu	Pro	225	230	235
Asp	Gly	Gly	Thr	Gln	Thr	Val	Leu	Met	Pro	Gln	Val	Tyr	Val	Arg	Val	245	250	255
Lys	Asn	Gly	Gly	Ile	Asp	Gly	Lys	Gly	Ala	Leu	Leu	Ser	Gly	Ser	Asn	260	265	270
Thr	Gln	Ile	Asn	Val	Ser	Gly	Ser	Leu	Lys	Asn	Ser	Gly	Thr	Ile	Ala	275	280	285
Gly	Arg	Asn	Ala	Leu	Ile	Ile	Asn	Thr	Asp	Thr	Leu	Asp	Asn	Ile	Gly	290	295	300
Gly	Arg	Ile	His	Ala	Gln	Lys	Ser	Ala	Val	Thr	Ala	Thr	Gln	Asp	Ile	305	310	315
Asn	Asn	Ile	Gly	Gly	Ile	Leu	Ser	Ala	Glu	Gln	Thr	Leu	Leu	Leu	Asn	325	330	335
Ala	Gly	Asn	Asn	Ile	Asn	Asn	Gln	Ser	Thr	Ala	Lys	Ser	Ser	Gln	Asn	340	345	350
Ala	Gln	Gly	Ser	Ser	Thr	Tyr	Leu	Asp	Arg	Met	Ala	Gly	Ile	Tyr	Ile	355	360	365
Thr	Gly	Lys	Glu	Lys	Gly	Val	Leu	Ala	Ala	Gln	Ala	Gly	Lys	Asp	Ile	370	375	380
Asn	Ile	Ile	Ala	Gly	Gln	Ile	Ser	Asn	Gln	Ser	Asp	Gln	Gly	Gln	Thr	385	390	395
Arg	Leu	Gln	Ala	Gly	Arg	Asp	Ile	Asn	Leu	Asp	Thr	Val	Gln	Thr	Gly	405	410	415
Lys	Tyr	Gln	Glu	Ile	His	Phe	Asp	Ala	Asp	Asn	His	Thr	Ile	Arg	Gly	420	425	430
Ser	Thr	Asn	Glu	Val	Gly	Ser	Ser	Ile	Gln	Thr	Lys	Gly	Asp	Val	Thr	435	440	445
Leu	Leu	Ser	Gly	Asn	Asn	Leu	Asn	Ala	Lys	Ala	Ala	Glu	Val	Gly	Ser	450	455	460

Ala Lys Gly Thr Leu Ala Val Tyr Ala Lys Asn Asp Ile Thr Ile Ser																			
465					470					475									480
Ser Gly Ile His Ala Gly Gln Val Asp Asp Ala Ser Lys His Thr Gly					485					490									495
Arg Ser Gly Gly Gly Asn Lys Leu Val Ile Thr Asp Lys Ala Gln Ser					500					505									510
His His Glu Thr Ala Gln Ser Ser Thr Phe Glu Gly Lys Gln Val Val					515														525
Leu Gln Ala Gly Asn Asp Ala Asn Ile Leu Gly Ser Asn Val Ile Ser					530					535									540
Asp Asn Gly Thr Arg Ile Gln Ala Gly Asn His Val Arg Ile Gly Thr					545					550									555
Thr Gln Thr Gln Ser Gln Ser Glu Thr Tyr His Gln Thr Gln Lys Ser					565					570									575
Gly Leu Met Ser Ala Gly Ile Gly Phe Thr Ile Gly Ser Lys Thr Asn					580					585									590
Thr Gln Glu Asn Gln Ser Gln Ser Asn Glu His Thr Gly Ser Thr Val					595					600									605
Gly Ser Leu Lys Gly Asp Thr Thr Ile Val Ala Ser Lys His Tyr Glu					610					615									620
Gln Thr Gly Ser Asn Val Ser Ser Pro Glu Gly Asn Asn Leu Ile Ser					625					630									635
Thr Gln Ser Met Asp Ile Gly Ala Ala Gln Asn Gln Leu Asn Ser Lys					645					650									655
Thr Thr Gln Thr Tyr Glu Gln Lys Gly Leu Thr Val Ala Phe Ser Ser					660					665									670
Pro Val Thr Asp Leu Ala Gln Gln Ala Ile Ala Val Ala His Lys Ala					675					680									685
Ala Asn Lys Ser Asp Lys Ala Lys Thr Thr Ala Leu Met Pro Trp Arg					690					695									700
Leu Pro Met Gln Val Gly Arg Pro Ile Lys Gln Ala Lys Ala His Lys					705					710									715
																			720

Thr

<210> 517
 <211> 689
 <212> DNA
 <213> Neisseria meningitidis

<400> 517
tcaggggaata acctcaatgc caaagctgcc gaagtcagca gcgcaaacgg tacactcgct 60
gtgtctgcca ataatgacat caacatcagc gcaggcâtca acacgaccca tggtgatgat 120
gcgtccaaac acacaggcag aagcgggtggt ggcaataaat tagtcattac cgataaagcc 180
caaagtcatc acgaaaccgc ccaaagcagc acctttgaag gcaagcaagt tgtattgcag 240
gcagggaaacg atgccaacat ccttggcagc aatgttattt ccgataatgg caccagatt 300
caagcaggca atcatgttcg cattggtaca acccaaactc aaagccaaag cgaaacctat 360
catcaaacc cagaaatcagg attgatgagt gcagggtatcg gcttcactat tggcagcaag 420
acaaacacac aagaaaacca atcccaaagc aacgaacata caggcagtac cgtaggcagc 480
ttgaaaggcg ataccacat tggtgcaggc aaacactacg aacaaatcgg cagtaccgtt 540
tccagcccg aaggcaaca taccatctat gcccaaagca tagacattca agcggcacac 600
aacaaattaa acagtaatac cacccaaacc tatgaacaaa aaggctaacg gtggcattca 660
gttcgcccgt taccgatttg gcacaacaa 689

<210> 518
<211> 230
<212> PRT
<213> Neisseria meningitidis

<220>
<221> misc_feature
<222> (215)..(215)
<223> Xaa= any amino acid

<400> 518
Ser Gly Asn Asn Leu Asn Ala Lys Ala Ala Glu Val Ser Ser Ala Asn
1 5 10 15
Gly Thr Leu Ala Val Ser Ala Asn Asn Asp Ile Asn Ile Ser Ala Gly
20 25 30
Ile Asn Thr Thr His Val Asp Asp Ala Ser Lys His Thr Gly Arg Ser
35 40 45
Gly Gly Gly Asn Lys Leu Val Ile Thr Asp Lys Ala Gln Ser His His
50 55 60
Glu Thr Ala Gln Ser Ser Thr Phe Glu Gly Lys Gln Val Val Leu Gln
65 70 75 80
Ala Gly Asn Asp Ala Asn Ile Leu Gly Ser Asn Val Ile Ser Asp Asn
85 90 95
Gly Thr Gln Ile Gln Ala Gly Asn His Val Arg Ile Gly Thr Thr Gln
100 105 110
Thr Gln Ser Gln Ser Glu Thr Tyr His Gln Thr Gln Lys Ser Gly Leu
115 120 125
Met Ser Ala Gly Ile Gly Phe Thr Ile Gly Ser Lys Thr Asn Thr Gln
130 135 140
Glu Asn Gln Ser Gln Ser Asn Glu His Thr Gly Ser Thr Val Gly Ser
145 150 155 160
Leu Lys Gly Asp Thr Thr Ile Val Ala Gly Lys His Tyr Glu Gln Ile

165

170

175

Gly Ser Thr Val Ser Ser Pro Glu Gly Asn Asn Thr Ile Tyr Ala Gln
 180 185 190

Ser Ile Asp Ile Gln Ala Ala His Asn Lys Leu Asn Ser Asn Thr Thr
 195 200 205

Gln Thr Tyr Glu Gln Lys Xaa Leu Thr Val Ala Phe Ser Ser Pro Val
 210 215 220

Thr Asp Leu Ala Gln Gln
 225 230

<210> 519
 <211> 8
 <212> DNA
 <213> Neisseria gonorrhoeae

<220>
 <221> misc_feature
 <222> (1)..(8)
 <223> N= Unknown

<400> 519
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8

<210> 520
 <211> 721
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 520
 Leu Leu Val Gln Thr Glu Lys Asp Gly Leu His Asn Glu Gln Thr Phe
 1 5 10 15

Gly Glu Lys Lys Val Phe Ser Glu Asn Gly Lys Leu His Asn Tyr Trp
 20 25 30

Arg Ala Arg Arg Lys Gly His Asp Glu Thr Gly His Arg Glu Gln Asn
 35 40 45

Tyr Thr Leu Pro Glu Glu Ile Thr Arg Asp Ile Ser Leu Gly Ser Phe
 50 55 60

Ala Tyr Glu Ser His Ser Lys Ala Leu Ser Arg His Ala Pro Ser Gln
 65 70 75 80

Gly Thr Glu Leu Pro Gln Ser Asn Arg Asp Asn Ile Arg Thr Ala Lys
 85 90 95

Ser Asn Gly Ile Ser Leu Pro Tyr Thr Pro Asn Ser Phe Thr Pro Leu
 100 105 110

Pro Gly Ser Ser Leu Tyr Ile Ile Asn Pro Ala Asn Lys Gly Tyr Leu
 115 120 125

Val	Glu	Thr	Asp	Pro	Arg	Phe	Ala	Asn	Tyr	Arg	Gln	Trp	Leu	Gly	Ser	130	135	140
Asp	Tyr	Met	Leu	Gly	Ser	Leu	Lys	Leu	Asp	Pro	Asn	Asn	Leu	His	Lys	145	150	155
Arg	Leu	Gly	Asp	Gly	Tyr	Tyr	Glu	Gln	Arg	Leu	Ile	Asn	Glu	Gln	Ile	165	170	175
Ala	Glu	Leu	Thr	Gly	His	Arg	Arg	Leu	Asp	Gly	Tyr	Gln	Asn	Asp	Glu	180	185	190
Glu	Gln	Phe	Lys	Ala	Leu	Met	Asp	Asn	Gly	Ala	Thr	Ala	Ala	Arg	Ser	195	200	205
Met	Asn	Leu	Ser	Val	Gly	Ile	Ala	Leu	Ser	Ala	Glu	Gln	Ala	Ala	Gln	210	215	220
Leu	Thr	Ser	Asp	Ile	Val	Trp	Leu	Val	Gln	Lys	Glu	Val	Lys	Leu	Pro	225	230	235
Asp	Gly	Gly	Thr	Gln	Thr	Val	Leu	Met	Pro	Gln	Val	Tyr	Val	Arg	Val	245	250	255
Lys	Asn	Gly	Gly	Ile	Asp	Gly	Lys	Gly	Ala	Leu	Leu	Ser	Gly	Ser	Asn	260	265	270
Thr	Gln	Ile	Asn	Val	Ser	Gly	Ser	Leu	Lys	Asn	Ser	Gly	Thr	Ile	Ala	275	280	285
Gly	Arg	Asn	Ala	Leu	Ile	Ile	Asn	Thr	Asp	Thr	Leu	Asp	Asn	Ile	Gly	290	295	300
Gly	Arg	Ile	His	Ala	Gln	Lys	Ser	Ala	Val	Thr	Ala	Thr	Gln	Asp	Ile	305	310	315
Asn	Asn	Ile	Gly	Gly	Ile	Leu	Ser	Ala	Glu	Gln	Thr	Leu	Leu	Leu	Asn	325	330	335
Ala	Gly	Asn	Asn	Ile	Asn	Asn	Gln	Ser	Thr	Ala	Lys	Ser	Ser	Gln	Asn	340	345	350
Ala	Gln	Gly	Ser	Ser	Thr	Tyr	Leu	Asp	Arg	Met	Ala	Gly	Ile	Tyr	Ile	355	360	365
Thr	Gly	Lys	Glu	Lys	Gly	Val	Leu	Ala	Ala	Gln	Ala	Gly	Lys	Asp	Ile	370	375	380
Asn	Ile	Ile	Ala	Gly	Gln	Ile	Ser	Asn	Gln	Ser	Asp	Gln	Gly	Gln	Thr	385	390	395
Arg	Leu	Gln	Ala	Gly	Arg	Asp	Ile	Asn	Leu	Asp	Thr	Val	Gln	Thr	Gly	405	410	415
Lys	Tyr	Gln	Glu	Ile	His	Phe	Asp	Ala	Asp	Asn	His	Thr	Ile	Arg	Gly	420	425	430

Ser Thr Asn Glu Val Gly Ser Ser Ile Gln Thr Lys Gly Asp Val Thr	435	440	445
Leu Leu Ser Gly Asn Asn Leu Asn Ala Lys Ala Ala Glu Val Gly Ser	450	455	460
Ala Lys Gly Thr Leu Ala Val Tyr Ala Lys Asn Asp Ile Thr Ile Ser	465	470	475 480
Ser Gly Ile His Ala Gly Gln Val Asp Asp Ala Ser Lys His Thr Gly	485	490	495
Arg Ser Gly Gly Gly Asn Lys Leu Val Ile Thr Asp Lys Ala Gln Ser	500	505	510
His His Glu Thr Ala Gln Ser Ser Thr Phe Glu Gly Lys Gln Val Val	515	520	525
Leu Gln Ala Gly Asn Asp Ala Asn Ile Leu Gly Ser Asn Val Ile Ser	530	535	540
Asp Asn Gly Thr Arg Ile Gln Ala Gly Asn His Val Arg Ile Gly Thr	545	550	555 560
Thr Gln Thr Gln Ser Gln Ser Glu Thr Tyr His Gln Thr Gln Lys Ser	565	570	575
Gly Leu Met Ser Ala Gly Ile Gly Phe Thr Ile Gly Ser Lys Thr Asn	580	585	590
Thr Gln Glu Asn Gln Ser Gln Ser Asn Glu His Thr Gly Ser Thr Val	595	600	605
Gly Ser Leu Lys Gly Asp Thr Thr Ile Val Ala Ser Lys His Tyr Glu	610	615	620
Gln Thr Gly Ser Asn Val Ser Ser Pro Glu Gly Asn Asn Leu Ile Ser	625	630	635 640
Thr Gln Ser Met Asp Ile Gly Ala Ala Gln Asn Gln Leu Asn Ser Lys	645	650	655
Thr Thr Gln Thr Tyr Glu Gln Lys Gly Leu Thr Val Ala Phe Ser Ser	660	665	670
Pro Val Thr Asp Leu Ala Gln Gln Ala Ile Ala Val Ala His Lys Ala	675	680	685
Ala Lys Gln Phe Asp Lys Ala Lys Thr Thr Ala Leu Met Pro Trp Arg	690	695	700
Leu Pro Met Gln Val Gly Arg Leu Phe Lys Gln Ala Lys Ala Pro Lys	705	710	715 720
Lys			

<210> 521
 <211> 2166
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 521
 ttgcttgtgc aaacagaaaa agacggtttg cataacgagc aaaccttttg cgagaagaaa 60
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 gaaacagggc atcgtgaaca aaattatact ttgccggagg aaatcacacg cgacatttca 180
 ctgggttcat ttgcctatga atcgcatagc aaagcattaa gccgtcatgc gccagccaa 240
 ggactgagt tgccacaaag taaccgggat aatatccgta ctgcgaaaag caacgggtatt 300
 tcgtaccct atacgccc aaattttacc ccattaccg gcagcagctt atacattatc 360
 aatcctgcc aataaaggcta tcttgttgaa accgatccac gctttgcaa ctaccgtcaa 420
 tgggtgggta gtgactatat gctggggcagc ctcaaactag acccaaaca tttacataaa 480
 cgtttgggtg atggttatta cgagcaacgt ttaatcaatg aacaaatcgc agagctgaca 540
 gggcatcgtc gtttagacgg ttatcaaaac gacgaagaac aatttaaagc cttaatggat 600
 aatggcgcg aatggcgcg ctgcggcacg ttcgatgaat ctgagcgttg gcattgcatt aagtgccgag 660
 caagcagcgc aactgaccag cgatattggt tggttggtag aaaaagaagt taaacttctt 720
 gatggcgga cacaaccgtt attgatgcca cagggttatg tacgcgttaa aaatggcggc 780
 atagacggta aaggtgcatt gttgtcaggc agcaatacac aaatcaatgt ttcaggcagc 840
 ctgaaaaact caggcacgat tgcaggcgcc aatgcgctta ttatcaatac cgataccta 900
 gacaatatcg gtgggcgtat tcatgcgcaa aaatcagcgg ttacggccac acaagacatc 960
 aataatattg ggggcattct ttctgccgaa cagacattat tgctcaatgc gggtaacaac 1020
 atcaacaacc aaagcacggc caagagcagt caaaatgcac aaggttagcag cacctaccta 1080
 gaccgaatgg cagggtattt tatcacaggc aaagaaaaag gtgttttagc agcgcaggca 1140
 ggcaaagaca tcaacatcat tgccgggtcaa atcagcaatc aatcagatca agggcaaacc 1200
 cggctgcagg caggacgcga cattaacctg gatacggtag aaaccggcaa atatcaagaa 1260
 atccattttg atgccgataa ccataccatc cgagggttaa cgaacgaagt cggcagcagc 1320
 attcaaaaca aaggcgatgt taccctattg tcagggaata atctcaatgc caaagctgcc 1380
 gaagtcggca ggcgaaaagg cacacttgcc gtgtatgcta aaaatgacat tactatcagc 1440
 tcaggcatcc atgccggcca agttgatgat gcgtccaaac atacaggcag aagcggcggc 1500
 ggtaataaat tagtcattac cgataaagcc caaagtcac acgaaaactgc tcaaagcagc 1560
 acctttgaag gcaagcaagt tgtattgcag gcaggaaacg atgccaacat ccttggcagt 1620
 aatgttattt ccgataatgg caccgggatt caagcaggca atcatgttcg catttggtaca 1680
 acccaaactc aaagccaaag cgaaacctat catcaaacc aaaaatcagg attgatgagt 1740
 gcaggatatc gcttcactat tggcagcaag acaaacacac aagaaaacca atcccaaagc 1800
 aacgaacata caggcagtag cgtaggcagc ctgaaaggcg ataccaccat tgttgcaagc 1860
 aaacactacg aacaaaccgg cagcaacggt tccagccctg agggcaacaa ccttatcagc 1920
 acgcaaagta tggatattgg cgcagcacia aaccaattaa acagcaaac cacccaaacc 1980
 tacgaacaaa aaggcttaac ggtggcattc agttcgcccg ttaccgattt ggcacaacaa 2040
 gcgattgccg tagcacacia agcagcaaac aagtcggaca aagcaaaaac gaccgcgtta 2100
 atgccatggc ggctgccaat gcagggtggc aggcctatca aacaggcaaa ggcgcacaaa 2160
 acttag 2166

<210> 522
 <211> 721
 <212> PRT
 <213> Neisseria gonorrhoeae

<400> 522
 Leu Leu Val Gln Thr Glu Lys Asp Gly Leu His Asn Glu Gln Thr Phe
 1 5 10 15
 Gly Glu Lys Lys Val Phe Ser Glu Asn Gly Lys Leu His Asn Tyr Trp
 20 25 30

Arg Ala Arg Arg Lys Gly His Asp Glu Thr Gly His Arg Glu Gln Asn
 35 40 45
 Tyr Thr Leu Pro Glu Glu Ile Thr Arg Asp Ile Ser Leu Gly Ser Phe
 50 55 60
 Ala Tyr Glu Ser His Ser Lys Ala Leu Ser Arg His Ala Pro Ser Gln
 65 70 75 80
 Gly Thr Glu Leu Pro Gln Ser Asn Arg Asp Asn Ile Arg Thr Ala Lys
 85 90 95
 Ser Asn Gly Ile Ser Leu Pro Tyr Thr Pro Asn Ser Phe Thr Pro Leu
 100 105 110
 Pro Gly Ser Ser Leu Tyr Ile Ile Asn Pro Ala Asn Lys Gly Tyr Leu
 115 120 125
 Val Glu Thr Asp Pro Arg Phe Ala Asn Tyr Arg Gln Trp Leu Gly Ser
 130 135 140
 Asp Tyr Met Leu Gly Ser Leu Lys Leu Asp Pro Asn Asn Leu His Lys
 145 150 155 160
 Arg Leu Gly Asp Gly Tyr Tyr Glu Gln Arg Leu Ile Asn Glu Gln Ile
 165 170 175
 Ala Glu Leu Thr Gly His Arg Arg Leu Asp Gly Tyr Gln Asn Asp Glu
 180 185 190
 Glu Gln Phe Lys Ala Leu Met Asp Asn Gly Ala Thr Ala Ala Arg Ser
 195 200 205
 Met Asn Leu Ser Val Gly Ile Ala Leu Ser Ala Glu Gln Ala Ala Gln
 210 215 220
 Leu Thr Ser Asp Ile Val Trp Leu Val Gln Lys Glu Val Lys Leu Pro
 225 230 235 240
 Asp Gly Gly Thr Gln Thr Val Leu Met Pro Gln Val Tyr Val Arg Val
 245 250 255
 Lys Asn Gly Gly Ile Asp Gly Lys Gly Ala Leu Leu Ser Gly Ser Asn
 260 265 270
 Thr Gln Ile Asn Val Ser Gly Ser Leu Lys Asn Ser Gly Thr Ile Ala
 275 280 285
 Gly Arg Asn Ala Leu Ile Ile Asn Thr Asp Thr Leu Asp Asn Ile Gly
 290 295 300
 Gly Arg Ile His Ala Gln Lys Ser Ala Val Thr Ala Thr Gln Asp Ile
 305 310 315 320
 Asn Asn Ile Gly Gly Ile Leu Ser Ala Glu Gln Thr Leu Leu Leu Asn
 325 330 335

Ala Gly Asn Asn Ile Asn Asn Gln Ser Thr Ala Lys Ser Ser Gln Asn
 340 345 350
 Ala Gln Gly Ser Ser Thr Tyr Leu Asp Arg Met Ala Gly Ile Tyr Ile
 355 360 365
 Thr Gly Lys Glu Lys Gly Val Leu Ala Ala Gln Ala Gly Lys Asp Ile
 370 375 380
 Asn Ile Ile Ala Gly Gln Ile Ser Asn Gln Ser Asp Gln Gly Gln Thr
 385 390 395 400
 Arg Leu Gln Ala Gly Arg Asp Ile Asn Leu Asp Thr Val Gln Thr Gly
 405 410 415
 Lys Tyr Gln Glu Ile His Phe Asp Ala Asp Asn His Thr Ile Arg Gly
 420 425 430
 Ser Thr Asn Glu Val Gly Ser Ser Ile Gln Thr Lys Gly Asp Val Thr
 435 440 445
 Leu Leu Ser Gly Asn Asn Leu Asn Ala Lys Ala Ala Glu Val Gly Ser
 450 455 460
 Ala Lys Gly Thr Leu Ala Val Tyr Ala Lys Asn Asp Ile Thr Ile Ser
 465 470 475 480
 Ser Gly Ile His Ala Gly Gln Val Asp Asp Ala Ser Lys His Thr Gly
 485 490 495
 Arg Ser Gly Gly Gly Asn Lys Leu Val Ile Thr Asp Lys Ala Gln Ser
 500 505 510
 His His Glu Thr Ala Gln Ser Ser Thr Phe Glu Gly Lys Gln Val Val
 515 520 525
 Leu Gln Ala Gly Asn Asp Ala Asn Ile Leu Gly Ser Asn Val Ile Ser
 530 535 540
 Asp Asn Gly Thr Arg Ile Gln Ala Gly Asn His Val Arg Ile Gly Thr
 545 550 555 560
 Thr Gln Thr Gln Ser Gln Ser Glu Thr Tyr His Gln Thr Gln Lys Ser
 565 570 575
 Gly Leu Met Ser Ala Gly Ile Gly Phe Thr Ile Gly Ser Lys Thr Asn
 580 585 590
 Thr Gln Glu Asn Gln Ser Gln Ser Asn Glu His Thr Gly Ser Thr Val
 595 600 605
 Gly Ser Leu Lys Gly Asp Thr Thr Ile Val Ala Ser Lys His Tyr Glu
 610 615 620
 Gln Thr Gly Ser Asn Val Ser Ser Pro Glu Gly Asn Asn Leu Ile Ser
 625 630 635 640

Thr Gln Ser Met Asp Ile Gly Ala Ala Gln Asn Gln Leu Asn Ser Lys
 645 650 655
 Thr Thr Gln Thr Tyr Glu Gln Lys Gly Leu Thr Val Ala Phe Ser Ser
 660 665 670
 Pro Val Thr Asp Leu Ala Gln Gln Ala Ile Ala Val Ala His Lys Ala
 675 680 685
 Ala Asn Lys Ser Asp Lys Ala Lys Thr Thr Ala Leu Met Pro Trp Arg
 690 695 700
 Leu Pro Met Gln Val Gly Arg Pro Ile Lys Gln Ala Lys Ala His Lys
 705 710 715 720

Thr

<210> 523
 <211> 525
 <212> DNA
 <213> Neisseria meningitidis

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 ctgctcaaca gcawaaccag ccatgtccgc gacggcaaac cgtccggcgg gtcagtcag 180
 atgccgaaac cccaaccggc ggtcaaaaaa acggcaaaac cccaagaccc cgycatgcgc 240
 aacctgcaag aacaggatgc cgtctacatc gccaaagcaga aacaggcaaa agcctccccg 300
 ttcaaaaccg aaatcgaaac cgccttgga gaaagcggca ttatcggcaa ctccgcccac 360
 accgtttccg aaccccaaac cggacattcc gcaacgaaac ctgccgacgc gtcggcaaaa 420
 cctgcacccg ttccgcaaac acctgcaaaa ccgctgatta cgctcaaaga actgtcaaaa 480
 gtcgaattat cctggtttga cgtgcgcac gacttcatct cctat 525

<210> 524
 <211> 175
 <212> PRT
 <213> Neisseria meningitidis

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 <222> (78)..(78)
 <223> Xaa= any amino acid

<400> 524
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 20 25 30

Phe Gly His Ser Asp Lys Asp Ala Leu Leu Asn Ser Xaa Thr Ser His
 35 40 45

Val Arg Asp Gly Lys Pro Ser Gly Gly Ser Val Met Met Pro Lys Pro
 50 55 60

Gln Pro Ala Val Lys Lys Thr Ala Lys Pro Gln Asp Pro Xaa Met Arg
 65 70 75 80

Asn Leu Gln Glu Gln Asp Ala Val Tyr Ile Ala Lys Gln Lys Gln Ala
 85 90 95

Lys Ala Ser Pro Phe Lys Thr Glu Ile Glu Thr Ala Leu Glu Glu Ser
 100 105 110

Gly Ile Ile Gly Asn Ser Ala His Thr Val Ser Glu Pro Gln Thr Gly
 115 120 125

His Ser Ala Thr Lys Pro Ala Asp Ala Ser Ala Lys Pro Ala Pro Val
 130 135 140

Pro Gln Thr Pro Ala Lys Pro Leu Ile Thr Leu Lys Glu Leu Ser Lys
 145 150 155 160

Val Glu Leu Ser Trp Phe Asp Val Arg Ile Asp Phe Ile Ser Tyr
 165 170 175

<210> 525

<211> 1287

<212> DNA

<213> Neisseria meningitidis

<400> 525

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ctgctcaaca	gcaaaaccag	ccatgtccgc	gacggcaaac	cgtcggcgcg	gtcagtcagc	180
atgccgaaac	cccaaccggc	ggcaaaaaaa	acggcaaaac	cccaagaccc	cgccatgcgc	240
aacctgcaag	aacaggatgc	cgtctacatc	gccaagcaga	aacaggcaaa	agcctccccg	300
ttcaaaaccg	aaatcgaaac	cgccttggaa	gaaagcggca	ttatcggcaa	ctccgccccac	360
accgtttccg	aaccccaaac	cggacattcc	gcaccgaaac	ctgccgacgc	gccggcaaaa	420
cctgcaccgg	ttccgcaaac	acctgcaaaa	ccgctgatta	cgctcaaaga	actgtcaaaa	480
gtcgaattac	cctggtttga	cgtgcgcttc	gacttcatct	cctatatcgc	gctgaccgaa	540
gccaaagaac	tgcacgcact	gccgcgcctt	tccaaccgct	gccgctacca	gattgtcggc	600
tgcaccatgg	acgaccattt	ccagattgcc	gaaccatcc	cgggcatccg	ctatcaggca	660
tttatcgtgg	gtattcaggc	agtcagccgc	aacggacttg	cctcgcagga	agaactctcc	720
gcattcaacc	gccaggtgga	cgcattcgca	caaagcatgg	gcggtcagac	gctgcacacc	780
gaccttgccg	cctttatcga	agtggcttcc	gcactggacg	cattctgcgc	gcgcgtcgac	840
cagaccatcg	ccatccattt	ggtttccccg	accagcatca	gcggcgtaga	actgcgttcc	900
gccgtaacgg	gcgtgggttt	cgttttggaa	gacgacggcg	cgttccacta	taccgacacg	960
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ggcgaaaaaa	ccttcgacga	tttgtttatg	gatttggcgg	tacgcctgtc	cggccagttg	1140
aaactgaatc	tggcacaacga	caaaatggaa	gaagtcttca	cccaatggct	caaagacgtg	1200
cgcacttatg	tattggcgcg	tcagtccgag	atgctcaaa	tcggtatcga	accgggcggc	1260
aaaaccgcat	tgcgcctgtt	ctcctaa				1287

<210> 526
<211> 428
<212> PRT
<213> Neisseria meningitidis

<400> 526

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		20					25						30		
Phe	Gly	His	Ser	Asp	Lys	Asp	Ala	Leu	Leu	Asn	Ser	Lys	Thr	Ser	His
		35					40					45			
Val	Arg	Asp	Gly	Lys	Pro	Ser	Gly	Gly	Ser	Val	Met	Met	Pro	Lys	Pro
	50					55					60				
Gln	Pro	Ala	Val	Lys	Lys	Thr	Ala	Lys	Pro	Gln	Asp	Pro	Ala	Met	Arg
65				70					75					80	
Asn	Leu	Gln	Glu	Gln	Asp	Ala	Val	Tyr	Ile	Ala	Lys	Gln	Lys	Gln	Ala
			85					90						95	
Lys	Ala	Ser	Pro	Phe	Lys	Thr	Glu	Ile	Glu	Thr	Ala	Leu	Glu	Glu	Ser
		100					105						110		
Gly	Ile	Ile	Gly	Asn	Ser	Ala	His	Thr	Val	Ser	Glu	Pro	Gln	Thr	Gly
	115						120					125			
His	Ser	Ala	Pro	Lys	Pro	Ala	Asp	Ala	Pro	Ala	Lys	Pro	Ala	Pro	Val
	130					135					140				
Pro	Gln	Thr	Pro	Ala	Lys	Pro	Leu	Ile	Thr	Leu	Lys	Glu	Leu	Ser	Lys
145				150					155					160	
Val	Glu	Leu	Pro	Trp	Phe	Asp	Val	Arg	Phe	Asp	Phe	Ile	Ser	Tyr	Ile
			165					170						175	
Ala	Leu	Thr	Glu	Ala	Lys	Glu	Leu	His	Ala	Leu	Pro	Arg	Leu	Ser	Asn
		180						185					190		
Arg	Cys	Arg	Tyr	Gln	Ile	Val	Gly	Cys	Thr	Met	Asp	Asp	His	Phe	Gln
	195						200					205			
Ile	Ala	Glu	Pro	Ile	Pro	Gly	Ile	Arg	Tyr	Gln	Ala	Phe	Ile	Val	Gly
	210					215					220				
Ile	Gln	Ala	Val	Ser	Arg	Asn	Gly	Leu	Ala	Ser	Gln	Glu	Glu	Leu	Ser
225				230						235				240	
Ala	Phe	Asn	Arg	Gln	Val	Asp	Ala	Phe	Ala	Gln	Ser	Met	Gly	Gly	Gln
			245					250						255	
Thr	Leu	His	Thr	Asp	Leu	Ala	Ala	Phe	Ile	Glu	Val	Ala	Ser	Ala	Leu
		260						265						270	

Asp Ala Phe Cys Ala Arg Val Asp Gln Thr Ile Ala Ile His Leu Val
275 280 285

Ser Pro Thr Ser Ile Ser Gly Val Glu Leu Arg Ser Ala Val Thr Gly
290 295 300

Val Gly Phe Val Leu Glu Asp Asp Gly Ala Phe His Tyr Thr Asp Thr
305 310 315 320

Ser Gly Ser Thr Met Phe Ser Ile Cys Ser Leu Asn Asn Glu Pro Phe
325 330 335

Thr Asn Ala Leu Leu Asp Asn Gln Ser Tyr Lys Gly Phe Ser Met Leu
340 345 350

Leu Asp Ile Pro His Ser Pro Ala Gly Glu Lys Thr Phe Asp Asp Leu
355 360 365

Phe Met Asp Leu Ala Val Arg Leu Ser Gly Gln Leu Asn Leu Asn Leu
370 375 380

Val Asn Asp Lys Met Glu Glu Val Ser Thr Gln Trp Leu Lys Asp Val
385 390 395 400

Arg Thr Tyr Val Leu Ala Arg Gln Ser Glu Met Leu Lys Val Gly Ile
405 410 415

Glu Pro Gly Gly Lys Thr Ala Leu Arg Leu Phe Ser
420 425

<210> 527

<211> 1287

<212> DNA

<213> Neisseria meningitidis

<400> 527

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ctgctcaaca	gcaaaaccag	ccatgtccgc	gacggcaaac	cgcccgccgg	gccagtcag	180
atgccgaaac	cccaaccggc	ggtcaaaaaa	acggcaaaat	cccaagaccc	cgccatgcgc	240
aacctgcaag	agcaggatgc	cgtctacatc	gccaagcaga	aacaggcaaa	agcctccccg	300
ttcaaaaccg	aaatcgaaac	cgccttgga	gaaagcggca	ttatcgga	ctccgcccac	360
accgttcccc	aaccccaaac	cggacattcc	gcacaaaaac	ctgccgacgc	gccggcaaaa	420
cctgttcccc	ttccgcaaac	gccggcaaaa	ccgctgatta	cgctcaaaga	gctgtcgaag	480
gtcgagctgc	cctggtttga	cgtgcgcttc	gacttcattc	cttatatcgc	gctgaccgaa	540
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tgcaccatgg	acgaccattt	ccagattgcc	gaacccatcc	cgggcatccg	ctatcaggca	660
tttatcgtgg	gtattcaggc	agtcagccgc	aacggacttg	cctcgaggga	agaactctcc	720
gcattcaacc	gccagggtgga	tgatttcgca	cacagcatgg	gcggtcagac	gctgcacacc	780
gaccttgccg	cctttatcga	agtggcttcc	gcactggacg	cattctgcgc	gcgcgtcgac	840
cagactatcg	ccatccattt	ggtttccccg	accagcatca	gcggcgtaga	actgcgttcc	900
gccgtaacgg	gcgtggggtt	cgttttggaa	gacgacggcg	cgttccacta	taccgacacg	960
tcgggctcga	ccatgtttct	catctgctcg	ctcaacaacg	agccgtttac	caatgccctt	1020
ttggacaacc	agtcctataa	aggcttcagt	atgctgctcg	acatcccgcg	ctctccggca	1080
ggcgaaaaaa	ccttcgacga	ttgttttatg	gatttggcgg	tacgcctgtc	cggccagttg	1140
aacctgaatc	tggtcaacga	caaaatggaa	gaagtttcga	cccaatggct	caaagacgtg	1200

cgcaattatg tattggctcg tcagtcgag atgctcaaag tcggtatcga accgggcggc 1260
 aaaaccgcat tgcgctgtt ctctaa 1287

<210> 528
 <211> 428
 <212> PRT
 <213> Neisseria meningitidis

<400> 528
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 20 25 30
 Phe Gly His Ser Asp Lys Asp Ala Leu Leu Asn Ser Lys Thr Ser His
 35 40 45
 Val Arg Asp Gly Lys Pro Ser Gly Gly Pro Val Met Met Pro Lys Pro
 50 55 60
 Gln Pro Ala Val Lys Lys Thr Ala Lys Ser Gln Asp Pro Ala Met Arg
 65 70 75 80
 Asn Leu Gln Glu Gln Asp Ala Val Tyr Ile Ala Lys Gln Lys Gln Ala
 85 90 95
 Lys Ala Ser Pro Phe Lys Thr Glu Ile Glu Thr Ala Leu Glu Glu Ser
 100 105 110
 Gly Ile Ile Gly Asn Ser Ala His Thr Val Pro Glu Pro Gln Thr Gly
 115 120 125
 His Ser Ala Pro Lys Pro Ala Asp Ala Pro Ala Lys Pro Val Pro Val
 130 135 140
 Pro Gln Thr Pro Ala Lys Pro Leu Ile Thr Leu Lys Glu Leu Ser Lys
 145 150 155 160
 Val Glu Leu Pro Trp Phe Asp Val Arg Phe Asp Phe Ile Ser Tyr Ile
 165 170 175
 Ala Leu Thr Glu Ala Lys Glu Leu His Ala Leu Pro Arg Leu Ser Asn
 180 185 190
 Arg Cys Arg Tyr Gln Ile Val Gly Cys Thr Met Asp Asp His Phe Gln
 195 200 205
 Ile Ala Glu Pro Ile Pro Gly Ile Arg Tyr Gln Ala Phe Ile Val Gly
 210 215 220
 Ile Gln Ala Val Ser Arg Asn Gly Leu Ala Ser Gln Glu Glu Leu Ser
 225 230 235 240
 Ala Phe Asn Arg Gln Val Asp Ala Phe Ala His Ser Met Gly Gly Gln
 245 250 255

Thr Leu His Thr Asp Leu Ala Ala Phe Ile Glu Val Ala Ser Ala Leu
 260 265 270
 Asp Ala Phe Cys Ala Arg Val Asp Gln Thr Ile Ala Ile His Leu Val
 275 280 285
 Ser Pro Thr Ser Ile Ser Gly Val Glu Leu Arg Ser Ala Val Thr Gly
 290 295 300
 Val Gly Phe Val Leu Glu Asp Asp Gly Ala Phe His Tyr Thr Asp Thr
 305 310 315 320
 Ser Gly Ser Thr Met Phe Ser Ile Cys Ser Leu Asn Asn Glu Pro Phe
 325 330 335
 Thr Asn Ala Leu Leu Asp Asn Gln Ser Tyr Lys Gly Phe Ser Met Leu
 340 345 350
 Leu Asp Ile Pro His Ser Pro Ala Gly Glu Lys Thr Phe Asp Asp Leu
 355 360 365
 Phe Met Asp Leu Ala Val Arg Leu Ser Gly Gln Leu Asn Leu Asn Leu
 370 375 380
 Val Asn Asp Lys Met Glu Glu Val Ser Thr Gln Trp Leu Lys Asp Val
 385 390 395 400
 Arg Thr Tyr Val Leu Ala Arg Gln Ser Glu Met Leu Lys Val Gly Ile
 405 410 415
 Glu Pro Gly Gly Lys Thr Ala Leu Arg Leu Phe Ser
 420 425

<210> 529
 <211> 1287
 <212> DNA
 <213> Neisseria gonorrhoeae

<400> 529
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 atgccgaaac cccaaccggc ggtcaaaaaa ccggccaaac cccaagactc cgccatgcgc 240
 aacctgcaag aacaggatgc cgtctacatc gccaagcaga aacaggcaaa agcctccccg 300
 ttcaaaaaccg aaatcgaaac cgccttgga gaaatcggca ttatcggaac ctccgcccac 360
 accgtttccg aaccccaaac cggacattcc gcaccgaaac ctgccgacgc gccggcaaaa 420
 cccgttcccg ttccgcaaac gccggcaaaa ccgctgatta cgctcaaaga gctgtcgaag 480
 gtcgagctgc cctggtttga cgtgcgcttc gacttcatct cctatatcgc gctgaccgaa 540
 gccaaaagaac tgcacgcact gccgcgcctt tccaaccgct gccgctacca gattgtcggc 600
 tgcaccatgg acgaccattt ccagattgcc gaacccatcc cgggcatccg ctatcaggca 660
 tttatcgtgg gtatccaggc agtcagccgc aacggacttg cctcgcagga agaactctcc 720
 gcattcaacc gccaggcgga cgcattcgca caaagcatgg gcggtcagac gctgcacacc 780
 gaccttgccg cctttatcga agtggcttcc gcaactggac cattctgcgc gcgcgtcgac 840
 cagaccatcg ccatccattt ggtttcgccg accagcatca gcggcgtaga actgcgttcc 900
 gccgtaacgg gcgtggggtt cgttttggaa gacgacggcg cgttccacta taccgacacg 960
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ggcgaaaaaa	ccttcgacga	tttgtttatg	gatttggcgg	tacgcctgtc	cggtcagttg	1140
aacctgaatc	tgggtcaacga	caaaatggaa	gaagtttcga	cccaatggct	caaagacgta	1200
cgcacttatg	tattggcgcg	tcagtccgag	atgctcaaag	tcggtatcga	accggggcggc	1260
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<210> 530
 <211> 428
 <212> PRT
 <213> *Neisseria gonorrhoeae*

<400> 530

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			20					25					30		
Phe	Gly	His	Ser	Asp	Lys	Asp	Ala	Leu	Leu	Asn	Ser	Lys	Thr	Ser	His
		35					40					45			
Val	Arg	Asp	Gly	Lys	Pro	Ser	Gly	Gly	Pro	Val	Met	Met	Pro	Lys	Pro
	50					55					60				
Gln	Pro	Ala	Val	Lys	Lys	Pro	Ala	Lys	Pro	Gln	Asp	Ser	Ala	Met	Arg
65				70						75				80	
Asn	Leu	Gln	Glu	Gln	Asp	Ala	Val	Tyr	Ile	Ala	Lys	Gln	Lys	Gln	Ala
			85					90						95	
Lys	Ala	Ser	Pro	Phe	Lys	Thr	Glu	Ile	Glu	Thr	Ala	Leu	Glu	Glu	Ile
		100					105						110		
Gly	Ile	Ile	Gly	Asn	Ser	Ala	His	Thr	Val	Ser	Glu	Pro	Gln	Thr	Gly
	115						120					125			
His	Ser	Ala	Pro	Lys	Pro	Ala	Asp	Ala	Pro	Ala	Lys	Pro	Val	Pro	Val
	130					135					140				
Pro	Gln	Thr	Pro	Ala	Lys	Pro	Leu	Ile	Thr	Leu	Lys	Glu	Leu	Ser	Lys
145				150					155					160	
Val	Glu	Leu	Pro	Trp	Phe	Asp	Val	Arg	Phe	Asp	Phe	Ile	Ser	Tyr	Ile
			165					170					175		
Ala	Leu	Thr	Glu	Ala	Lys	Glu	Leu	His	Ala	Leu	Pro	Arg	Leu	Ser	Asn
		180						185					190		
Arg	Cys	Arg	Tyr	Gln	Ile	Val	Gly	Cys	Thr	Met	Asp	Asp	His	Phe	Gln
	195						200					205			
Ile	Ala	Glu	Pro	Ile	Pro	Gly	Ile	Arg	Tyr	Gln	Ala	Phe	Ile	Val	Gly
	210					215					220				
Ile	Gln	Ala	Val	Ser	Arg	Asn	Gly	Leu	Ala	Ser	Gln	Glu	Glu	Leu	Ser
225				230						235				240	

Ala Phe Asn Arg Gln Ala Asp Ala Phe Ala Gln Ser Met Gly Gly Gln
245 250 255

Thr Leu His Thr Asp Leu Ala Ala Phe Ile Glu Val Ala Ser Ala Leu
260 265 270

Asp Ala Phe Cys Ala Arg Val Asp Gln Thr Ile Ala Ile His Leu Val
275 280 285

Ser Pro Thr Ser Ile Ser Gly Val Glu Leu Arg Ser Ala Val Thr Gly
290 295 300

Val Gly Phe Val Leu Glu Asp Asp Gly Ala Phe His Tyr Thr Asp Thr
305 310 315 320

Ser Gly Ser Thr Met Phe Ser Ile Cys Ser Leu Asn Asn Glu Pro Phe
325 330 335

Thr Asn Ala Leu Leu Asp Asn Gln Ser Tyr Lys Gly Phe Ser Met Leu
340 345 350

Leu Asp Ile Pro His Ser Pro Ala Gly Glu Lys Thr Phe Asp Asp Leu
355 360 365

Phe Met Asp Leu Ala Val Arg Leu Ser Gly Gln Leu Asn Leu Asn Leu
370 375 380

Val Asn Asp Lys Met Glu Glu Val Ser Thr Gln Trp Leu Lys Asp Val
385 390 395 400

Arg Thr Tyr Val Leu Ala Arg Gln Ser Glu Met Leu Lys Val Gly Ile
405 410 415

Glu Pro Gly Gly Lys Thr Ala Leu Arg Leu Phe Ser
420 425

<210> 531
<211> 464
<212> DNA
<213> Neisseria meningitidis

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tcggcggcat cggcgtgatg aacatcatgc tgggtgccgt taccgagcgc accaaagaaa 180
tcggcatacag gatggcaatc ggcgcgcggc gcggcaatat ttygcagcag tttttgattg 240
aggcgggtgtt aatctgcgtc atcggcgggt tggtcggcgt gggtttgcc gccgcggtca 300
gcctcgtgtt caatcatttt gtaaccgact tcccgatgga catttccgcc atgtccgtca 360
tcggcgcgggt cgcctgttcg accggaatcg gcatcgcgtt cggctttatg cctgccaata 420
aagcagccaa actcaatccg atagacgcat tggcacagga ttga 464

<210> 532
<211> 154
<212> PRT
<213> Neisseria meningitidis

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 <222> (15)..(15)
 <223> Xaa= any amino acid

<220>
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 <222> (75)..(75)
 <223> Xaa= any amino acid

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 Ser Ile Ala Leu Ile Ser Leu Val Val Gly Gly Ile Gly Val Met Asn
 35 40 45
 Ile Met Leu Val Ser Val Thr Glu Arg Thr Lys Glu Ile Gly Ile Arg
 50 55 60
 Met Ala Ile Gly Ala Arg Arg Gly Asn Ile Xaa Gln Gln Phe Leu Ile
 65 70 75 80
 Glu Ala Val Leu Ile Cys Val Ile Gly Gly Leu Val Gly Val Gly Leu
 85 90 95
 Ser Ala Ala Val Ser Leu Val Phe Asn His Phe Val Thr Asp Phe Pro
 100 105 110
 Met Asp Ile Ser Ala Met Ser Val Ile Gly Ala Val Ala Cys Ser Thr
 115 120 125
 Gly Ile Gly Ile Ala Phe Gly Phe Met Pro Ala Asn Lys Ala Ala Lys
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 Leu Asn Pro Ile Asp Ala Leu Ala Gln Asp
 145 150

<210> 533
 <211> 1167
 <212> DNA
 <213> Neisseria meningitidis

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 atccttgaag acatcagttc gatagggacg aacaccatca gcatcttccc ggggcgcggc 180
 ttcggcgaca ggcgcagcgg caggattaaa accctgacca tagacgacgc aaaaatcatc 240
 gccaaacaaa gctacgttgc ttccgccacg cccatgactt cgagcggcgg cacgctgact 300
 taccgcaaca ccgacctgac cgcctcgctt tacggcgtgg gcgaacaata ttctgacgtg 360
 cgcggactga agctggaaac ggggcggcgtg tttagcgaac acgatgtgaa agaagacgcg 420
 caggctcgtc tcatcgacca aaatgtcaaa gacaaactct ttgcggactc ggatccggtg 480
 ggtaaaacca ttttgttcag gaaacgcccc ttgaccgtca tcggcgtgat gaaaaaagac 540

gaaaacgctt	tccgcaattc	cgacgtgctg	atgctttggt	cgccctatac	gacggtgatg	600
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 Gly Thr Asn Thr Ile Ser Ile Phe Pro Gly Arg Gly Phe Gly Asp Arg
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 Arg Ser Gly Arg Ile Lys Thr Leu Thr Ile Asp Asp Ala Lys Ile Ile
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 Ala Lys Gln Ser Tyr Val Ala Ser Ala Thr Pro Met Thr Ser Ser Gly
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 Gly Thr Leu Thr Tyr Arg Asn Thr Asp Leu Thr Ala Ser Leu Tyr Gly
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 Val Gly Glu Gln Tyr Phe Asp Val Arg Gly Leu Lys Leu Glu Thr Gly
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 Arg Leu Phe Asp Glu Asn Asp Val Lys Glu Asp Ala Gln Val Val Val
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 Ile Asp Gln Asn Val Lys Asp Lys Leu Phe Ala Asp Ser Asp Pro Leu
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 Gly Lys Thr Ile Leu Phe Arg Lys Arg Pro Leu Thr Val Ile Gly Val
 165 170 175
 Met Lys Lys Asp Glu Asn Ala Phe Gly Asn Ser Asp Val Leu Met Leu
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 Trp Ser Pro Tyr Thr Thr Val Met His Gln Ile Thr Gly Glu Ser His
 195 200 205

Thr Asn Ser Ile Thr Val Lys Ile Lys Asp Asn Ala Asn Thr Gln Val
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 Ala Glu Lys Gly Leu Thr Asp Leu Leu Lys Ala Arg His Gly Thr Glu
 225 230 235 240
 Asp Phe Phe Met Asn Asn Ser Asp Ser Ile Arg Gln Ile Val Glu Ser
 245 250 255
 Thr Thr Gly Thr Met Lys Leu Leu Ile Ser Ser Ile Ala Leu Ile Ser
 260 265 270
 Leu Val Val Gly Gly Ile Gly Val Met Asn Ile Met Leu Val Ser Val
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 Thr Glu Arg Thr Lys Glu Ile Gly Ile Arg Met Ala Ile Gly Ala Arg
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 Arg Gly Asn Ile Leu Gln Gln Phe Leu Ile Glu Ala Val Leu Ile Cys
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 Val Ile Gly Gly Leu Val Gly Val Gly Leu Ser Ala Ala Val Ser Leu
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 Val Phe Asn His Phe Val Thr Asp Phe Pro Met Asp Ile Ser Ala Met
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 Ser Val Ile Gly Ala Val Ala Cys Ser Thr Gly Ile Gly Ile Ala Phe
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